

Shop the online store  
TheNationalLocksmith.com  
• [CLICK HERE](#) •

January 2000  
Volume 71  
No. 1  
\$5.00

**CODES!**  
GM H0001-H3988  
page 126

# The National Locksmith®

**PADLOCKS**

YOUR  
VOTE COUNTS!  
READER'S CHOICE AWARDS  
BALLOT ENCLOSED  
PAGE 113

TheNationalLocksmith.com  
Forums...Chat...Online Store!

[Click here to browse new issue](#)



**On The Cover...**



Exploring the design, operation, and bypass procedures of the most widely used auxiliary locking devices in the world ...padlocks.

**Publisher** Marc Goldberg

**Editor** Greg Mango

**Art Director** Jim Darow

**Production Director** Edgar Shindelar

**Technical Editor** Jake Jakubowski

**Senior Writers**

Sal Dulcamaro CML, Michael Hyde, Dale Libby CMS, Dave McOmie, Sara Probasco

**Contributing Writers** John Blankenship,

Tony Blass, Joe & Dee Bucha, Carl Cloud, Ron & Chris Curry, Richard Allen Dickey, Steve Gebbia, CML, Giles Kalvelage, Jim Langston, Tom Lynch, Tom Mazzone, Don Shiles, Robert Sieveking

**Director of Sales & Marketing**

Jeffrey Adair

**Advertising Account Manager**

Debbie Schertzing

**Circulation Manager** Tom Dean

**Accounting Manager** Sheila Campo

**Production Assistants** Kim Fryer  
Dave Krofel

**Administrative Assistant** Sean Selby

**Shipping Manager** Mauro Mendoza

**National Publishing Co.**

The National Locksmith® ISSN #0364-3719 is published monthly by the National Publishing Co., 1533 Burgundy Parkway, Streamwood, Illinois 60107-1861. Periodicals postage paid at Bartlett, Illinois 60107 and additional mailing offices USPS 040110. Subscriptions \$41.00 per year in the USA; \$54.00 per year in Canada; \$67.00 in all other countries. Single copies \$5.00 each. Postmaster, please send change of address to National Publishing Co., 1533 Burgundy Parkway, Streamwood, Illinois 60107-1861. ©2000 by the National Publishing Company. All rights reserved. Printed in the U.S.A.



The Audit Bureau Member



**Questions or problems with your subscription? Call (773) 348-6358**

For all other inquiries,  
call (630) 837-2044, fax: (630) 837-1210,  
or E-Mail: natlock@aol.com  
See us on the World-Wide Web:  
www.TheNationalLocksmith.com

# CONTENTS

The National Locksmith January 2000 • Vol. 71, No. 1

## FEATURES

### COVER FEATURE! 20

#### Getting Into Combination Padlocks, Part 1

Cover the internal construction and operation of combination padlocks.

### 26

#### Toys For Big Boys

Unique specialized tools that are fun and easy to use.

### 32

#### Daewoo

A new introduction from Korea.

### 42

#### Distributors Big & Small

Distributors still fill a role.

### 46

#### Introduction To Master Keying, Part 3

Cylinder and key design limitations.

### 53

#### WiseLock

A remote control deadbolt from Morning Industry, Inc.

### 69

#### 1996 Honda VFR750

Servicing Honda motorcycle locks.

### 80

#### LaPD (LaGard Pixie Dust)

Combination changing procedures on key change locks.

### 82

#### Quick Entry Update

Volkswagen Passat and Audi A4. The linkages are totally shielded.

### 98

#### Vaults With Tear Gas, Part 2

It can become as deadly as cyanide gas.

### 109

#### 2000 Ford Focus

It's more like a 1/32 scale model of the Ford Contour or Mercury Mystique.

### 124

#### Opening the 2000 Buick LeSabre

Vehicle opening and door panel removal.

### **CODES** 126

#### New General Motors

H0001-H3988.

## DEPARTMENTS

5 COMMENTARY

6 MANGO'S MESSAGE

10 LETTERS

16 SECURITY CAFÉ

58 BEGINNER'S CORNER

62 TECHTIPS

87 THE LIGHTER SIDE

138 TEST DRIVE



# COMMENTARY



www.TheNationalLocksmith.com

## Happy New Year To Locksmiths Everywhere!

**H**appy New Year! And January of next year, I will wish you a happy new millennium. Now I am one of those people who always misdates my checks until at least February. So I don't know how I am going to handle going from 1999 to 2000. But I suspect I'll handle it at least as well as Chicago's electric company is going to handle Y2K.

I have some new goodies to tell you about this month. First, our InstaCode software has been upgraded with the 2000 update. If you're an InstaCode user, you have either already received an order form in the mail, or you will within days.

For those of you who haven't yet climbed aboard the InstaCode bandwagon, let me mention that the program now runs faster than ever with major speed improvements in such areas as progressioning 10 cuts. Scads of new HPC 1200CM™ code cards have been improved or added. Plus literally hundreds of new code series have been added to the program, making it truly comprehensive.

**A**nother new software program introduced by *The National Locksmith* is called *The Automotive Edge on CD ROM*. This program will be a huge benefit for those of you who work on cars. This CD contains over 750 pages of photos and step by step instructions on how to do complete auto service on a huge range of vehicles including foreign, domestic and even high security. You can instantly look up any car on the CD, view on screen, or even print out the information you need.

*The Automotive Edge on CD ROM* is a \$149.95 value. However, you can get your copy totally free of charge when you join the *National Locksmith Automobile Association* (NLAA). You'll not only receive the CD free, but you'll also get a monthly newsletter just on automotive locksmithing, every month for a year. Plus you get a special bond for \$15,000.00. The cost is \$125.

Look for the NLAA ad on page 111. You get a great piece of software free, plus a year's worth of new information. If you're already an NLAA

member, don't worry. We'll offer you the software as a free gift with your next renewal.

**A**lso in this issue you will find your annual Reader's Choice Ballot. Please take a moment and fill it out now and return to us. This is your opportunity to express an opinion on what you believe to be the best products manufactured for locksmiths. Now is your chance to be heard by the people who make the products you use every day.

By the way, if you're reading this Commentary, then the supposed Y2K crisis must have turned out alright. It means that the computers which run the printing presses we are printed on did not fail. It also means that the computers which run the Post Office did not fail. Personally, I really hope you get to read this. I am not planning to stock up on food or bottled water.

**S**peaking of water, the biggest fear about the crisis is now that on the stroke of midnight, everyone in the country may flush the toilet to check if the water is running. The irony is that water is expected to work fine, but the system may not be able to support 300 million flushes all at the same time. Isn't it funny that a billion dollars have been spent on upgrading the technology to handle Y2K? Let's just hope it wasn't flushed down the drain!

A healthy, happy  
and prosperous New  
Year to you!

*Marc Goldberg*



**Have questions? Want free technical help?  
Free Locksmith Forums!**

www.TheNationalLocksmith.com

**Marc Goldberg**  
Publisher

January 2000 • 5



# Mango's Message

**H**ave you ever considered that the keys you handle on a daily basis may be a health risk to you, your children, or your children's children? Well, the State of California has determined that the keys you carry can poison you and genetically deform future generations.

The *Mateel Environmental Justice Foundation*, which is a special interest group, has filed a grievance under Proposition 65 to the California Attorney General, stating that brass key blanks contain a compound that has been determined to be hazardous to your health and you should know about it. As a result, the California Attorney General has filed suit against several key blank manufacturers and distributors.

California's Proposition 65, *The Safe Drinking Water and Toxic Enforcement Act of 1986*, was passed to address public concerns about exposure to toxic substances which cause cancer, birth defects or other reproductive harm. The California scientific advisory board determines which chemicals are known to the state as carcinogens or reproductive toxicants and periodically publishes updated lists in the *California Regulatory Notice Register*. There is currently over 650 listed chemicals known as carcinogens or reproductive toxicants that include dyes, solvents, pesticides, drugs, food additives and by-products of certain processes. These chemicals may be naturally occurring or synthetic in nature.

Proposition 65 prohibits the discharge of such chemicals into the drinking water or onto or into land where such chemicals can pass or probably will pass into any source of drinking water.

Proposition 65 does not mandate that a known carcinogen or reproductive toxicant be eliminated. It imposes certain controls that apply to chemicals that appear on the list and requires the manufacturer of such compounds to provide a "clear and reasonable" warning before knowingly and intentionally exposing anyone to a listed chemical. This warning can be given by a variety of means, such as by labeling a consumer product, by posting signs at the workplace, or by publishing notices in a newspaper. Companies failing to do so face prosecution under Proposition 65 and shall be liable for a civil penalty not to exceed \$2,500 per day for each such violation, in addition to any other penalty established by law. Plaintiffs successful in their litigation are entitled to their attorney's fees and 25% of any civil penalties assessed under a "Bounty Hunter" provision. In addition, public sectors may also be entitled to restitution or a disgorgement of profits applicable under the state's "Unfair Competition Statute."

## KILLER KEYS

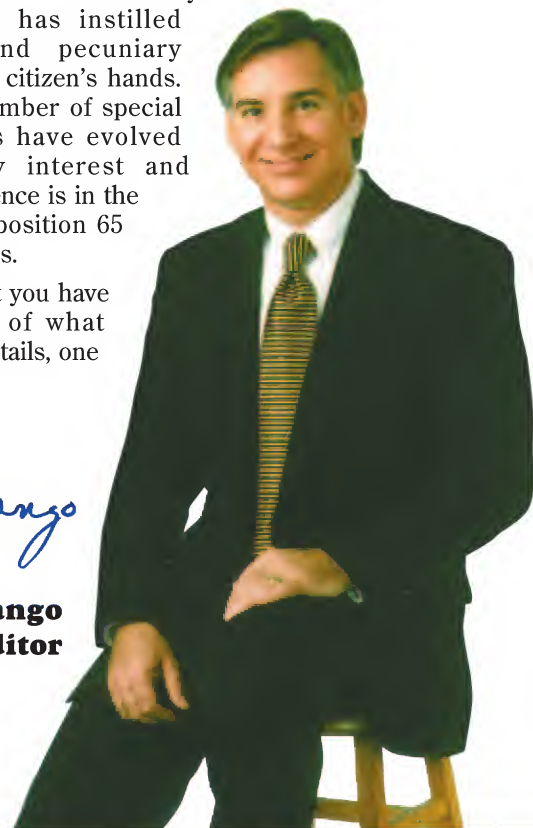


As you can imagine, prosecuting Proposition 65 violators can be quite lucrative. The provisions for Proposition 65 allows any person to bring an enforcement action against an alleged violator in the public interest. That's what leads to its appeal and makes Proposition 65 rather unique.

The Act was drafted out of frustration with the typical "command and control" regulatory scheme where an agency identifies hazards, sets standards for controlling such hazards, and then enforces violations of the standards. Instead, under Proposition 65 the overseeing agency has no compliance enforcement powers. It merely identifies which chemicals are considered carcinogens or reproductive toxicants, provides a range of compliance options and leaves enforcement to the Attorney General, district attorneys, and private parties who can sue "in the public interest." In theory Proposition 65 has instilled prosecutory and pecuniary interest in every citizen's hands. As a result a number of special interest groups have evolved whose primary interest and financial dependence is in the litigation of Proposition 65 enforcement cases.

Well, now that you have a general idea of what Proposition 65 entails, one

**Greg Mango**  
Editor







TOXIC LEAD

must ask what level of carcinogen or reproductive toxin causing chemical is unacceptable, how is it determined, why are brass key blank manufacturers an alleged violator of Proposition 65, and how will this affect you?

**T**he State of California has determined that a chemical listed as a carcinogen, or cancer causing agent, the "no significant risk" level is defined as the level which is calculated to result in not more than one excess case of cancer in 100,000 individuals exposed over a 70-year period. In other words, if you are exposed to the chemical in question at a specified level every day for 70 years, theoretically, it will increase your chances of getting cancer by no more than 1 case in 100,000 individuals exposed.

For chemicals listed as reproductive toxicants, the "no significant risk" level is defined as the level of exposure which even if divided by 1,000, will not produce birth defects or other reproductive harm. I know it's all rather confusing and non-specific, but there is a mathematical formula used for both cancer causing and reproductive toxicants to determine safe and unsafe exposure levels.

Considered in violation of Proposition 65, the California Attorney General has filed a suit in the San Francisco Superior Court as the "People of the State of California," against 15 manufacturers and distributors of brass key blanks. The companies indited are: ILCO Unican Corp.; Wynn's International Inc.; Master Lock Co.; Schlage Lock Co.; Kwikset Corp.; Best Lock Corp.; Arrow Lock Manufacturing Co.; Weiser Lock Corp.; Dexter Lock Co.; Jet Hardware Mfg. Co.; Chicago Lock; Olympus Lock; Illinois Lock Co.; Medeco Security Locks and American Lock Co. The suit alleges that these companies failed to warn consumers that their products may expose people to toxic levels of lead and lead compounds by handling keys. That's right, lead!

**T**he California Attorney General alleges that lead used in the manufacturing of key blanks exceeds California's acceptable levels of toxicity which can be acquired through thermal absorption or hand to mouth ingestion. Lead is a listed reproductive toxin which cannot exceed .5 micro grams or 5 parts per billion per day. Keys tested by the California Attorney General's office were an average of 18 times higher than the "no significant risk" limit and some were reported to be 80 times higher. That means brass keys were found to contain lead at levels of 90-400 parts per billion.

Those projected to run the highest risk of lead poisoning or future reproductive abnormalities from brass key blanks are toddlers. Lead toxicity is accomplished through hand to mouth ingestion after placing keys in mouth or fingers in mouth after handling brass keys, according to the California Attorney General.



Is the inclusion of lead in key blanks a well kept secret that the manufacturers have been keeping from us? No! Actually lead has always been used in brass key blanks and brass blanks are not exclusive. Nickel silver key blanks also contain lead. I am focusing on brass key blanks because nickel silver was not included in the suit against the product manufacturers. The amount of lead inclusion amounts to about 1½-2%. In fact just about every metal ore used for machining includes some amount of lead. It always has. Lead is used to soften an ore compound and make it malleable and machinable. Without it brass, for example, would be quite brittle and hard.


Is the use of lead exclusive to key blanks? No! There is a gamut of products that contain some level of lead: knoblocks, deadbolts, hinges, door knockers, hand rails, kickplates, your car, tools, toys, faucets, soldering and brazing products, welding products, piping, wires, fishing weights, water meters, batteries, craft products, and the list goes on. I mention the previous products because many of the manufacturers of such products are also in litigation in California under Proposition 65.

**S**o how will all this affect you as a key blank distributor or retailer? Until this case is settled that can't be determined. However, there are three possible verdicts.

1. The law firms representing the key blank manufacturers will prove that the toxic exposure falls below the level for which a warning label is required.
2. The manufacturers will agree to reformulate the compounds used in the manufacturing of brass key blanks to reduce the level of lead content.
3. The manufacturers will be required to print a warning indicating the product in question contains lead, a listed reproductive toxicant.

If the verdict is either 1 or 2, there will be no effect on distributors or retailers. However, if the manufacturers are required to print a warning as to the lead content in key blanks, that warning label will most likely trickle down the key blank distribution chain. Since many distributors and most locksmiths sell key blanks by the piece and not necessarily by the box or case, which will most likely carry the lead content warning, you would be required to post a lead content warning to your customers as well.

**WARNING: Ingesting more than three key blanks a day could be hazardous to your health!**

If you are interested in gathering more information on Proposition 65, on the Web go to: <http://www.oehha.org/prop65/p65plain.htm>, or call the "Office of Environmental Health Hazard Assessment's Proposition 65 Implementation Office" at: (916) 445-6900. 



# Letters

*The National Locksmith* is interested in your view. We do reserve the right to edit for clarity and length.

## TNL on CD

I received my "*The National Locksmith on Compact Disc*" last week and am compelled to write a note of appreciation to you, not only for putting such a project together, but also for providing it at such a low price. I've read only a few comments on the various on-line forums and find it a bit disheartening when I come across any criticism of this product. I believe that anybody with any common sense will see immediately both the benefits and the value of this work.

I don't expect you to remember, but I phoned you many years ago to inquire if such a project might be in the works, but at that time you indicated there was no such plan. Well, computers in the small business workplace were only beginning to catch on then and much has changed in this area. I'm so glad to see that you are utilizing this medium, and personally, I find it hard to believe that anyone in the business community can operate efficiently without them. I believe

that by providing your magazines back issues on disk, you've added one more reason for all locksmith to invest in a computer system and in *The National Locksmith's* products.

I'm hopeful you are receiving much praise for this product. I can't think of a more practical way to access the multitude of information in your trade journals. Certainly, most of the locksmiths out there will realize this as well. Above all, I hope you continue this trend with future issues, and soon, I hope, all locksmith related information will be available in a digital format. No doubt, you've started something that others will follow up on and the entire trade will progress because of it. I'm certainly impressed and hope I've expressed this. A well-deserved pat on the back seems hard to come by these days.

William C. Phillips  
Ohio

## Who Do They Think They Are?!

*The National Locksmith* is a very prestigious monthly publication. I have read it for more than 20 years. It is so important to me that annually I bind every 12 issues, because of its useful information.

I disagree with the August, 1999 edition. Two stupid and silly clowns - or publisher - or editor - wrote two offensive articles against my country (Mexico) and against a national convention held in Guadalajara.

This is the first time I have read such an article in this magazine, particularly against a foreign country.

What kind of Muppets are directing this excellent magazine,



which is celebrating its 70th anniversary? These funny face monkeys do not deserve the term writer. They should be working in a nomadic circus.

Who are Goldberg and Mango to criticize a convention of which they were guests? I understand the freedom of the press but this is libertinism.

In any country (not only in Mexico) you can find counterfeit money, even in Yankeeland.

No undesirable gringo "born and bred in the good old U.S. of A" should visit another country principally after hearing "a share of horror stories from across the border."

I phoned to the organizers of the convention and asked them: "What kind of persons did you invite to the last meeting?"

We don't need you in our beloved country if you come to conquer us or to criticize bitterly what we do. Let us make a deal: remain in your "beautiful country" full of drugs

**The National Locksmith**  
**1533 Burgundy Parkway**  
**Streamwood, IL 60107**  
**Attn: Editor**



homosexuals, lesbians, and AIDS bearers, all of them free of the Montezuma's revenge.

"Poor Mexico" said President Diaz after leaving the country, "So far from God, too near to the United States."

Viva Mexico! *Jesus G. Burciaga  
Ciudad Juarez*

**Publishers Note:** Wow! I had to respond to this letter personally. But before I do so, let me state emphatically that we will publish no more letters on this topic. The last thing I want to start is a border war.

I have to say that no disrespect was ever intended towards Mexico. However, I can see why you took offense anyway. We had some things to say about the convention, which explained how much we enjoyed both the show, the people and the country. We also said some things that did not sound complimentary, which in fact were never directed against the convention or people of Mexico. It was a portrayal of the more unusual events as they unfolded.

Believe me, we have also criticized our own country. For example, when the Associated Locksmiths of America (ALOA) convention was held in New Orleans, Greg

had some unflattering comments to make about that convention and the city. So let me not dwell on the negative. Suffice it to say that both Greg and I had a wonderful time in Mexico. We found the hosts to be magnificent, the locksmiths to be cordial, and the city to be beautiful.

Did we experience a few problems? Yes we did. But in no way did those problems ever get big enough to spoil a tremendous trip to a beautiful country.

Now that I have said that, let me also say that when someone feels offended they have two choices; The high road or the low road. You lost my sympathy when you took the low road with your comments. To show that we offended you, you did not need to be purposely offensive. But enough of that. After re-reading both of our articles, I will say that we should have spent more time talking about the good we found in Mexico and less about the negative. Every place has both good and bad; Mexico is no exception nor is the United States.

My impression of Mexico was excellent, and Greg also said in his editorial, "I had a great time in Mexico. The people are warm, genuine and hospitable..." The problems we experienced in Mexico were very small details when compared to the pleasure of the trip. We spoke too much of the few problems, and not enough about the good parts. After re-reading the articles, I cannot deny it. I just think you could have found a better way to say that.

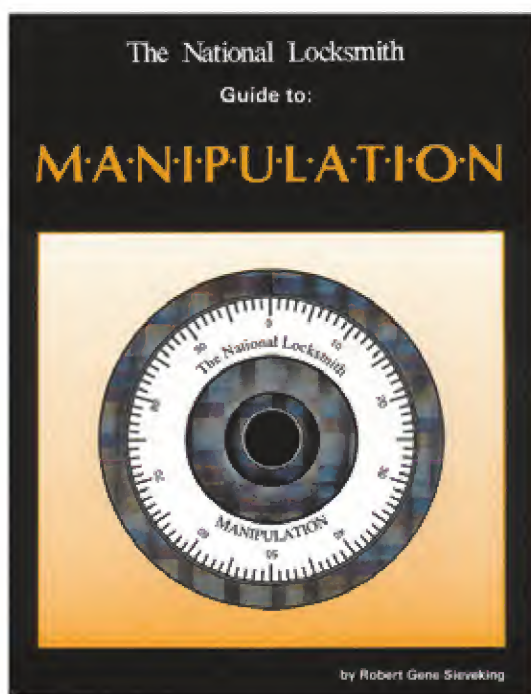
To my friends in Mexico, let me just say on behalf of Greg Mango and myself: Cuates, lo siento si les he ofendido con nuestro articulo. El hecho es que lo pasamos de maravilla en Guadalajara, y volveremos si nos invitan. No hay pais que es perfecto, ni aqui ni alla. Lo poco dificil que nos paso alla fue bien ahogado en todo lo magnifico que encontramos en su pais. Que viva Mexico, su gente y sus cerrajeros! **Marc Goldberg, Publisher**

## Another Passing

It is with a heavy heart and deep sorrow that I must be the bearer of bad news. Another one of the industries greatest members has passed away. LeVon Blough died on Sunday, October 17, 1999. He was a major asset to the locksmith community and a great friend to everyone who knew him.

LeVon started as a locksmith. After expanding his business he went on to work for Ilco and HPC. From there he went on to work as a

# Manipulation Home Study Course



Our home study course guides you on step-by-step process, teaching you everything there is to know about manipulation.

**CLICK HERE TO LEARN MORE**



#MAN - 1



distributor representative. Being on the road gave him a chance to meet a lot of locksmiths. Von was always available to assist any locksmith, be it large or small with any problem they had. Anytime, day or night, Von was only a phone call away. Von was never afraid of a challenge, be it opening a safe, finding an unusual lock, a shoulder to cry on, or an open ear, Von was there. Von always went the extra mile for everyone. He stayed strong in the industry even after health problems made him retire.

LeVon Blough was a good friend, a great father, and a fabulous locksmith. The industry lost another one of their greatest locksmiths and friends. He will truly be missed by all that knew him. *James Barnhardt*  
E-Mail

**Publisher's Note:** I knew Von rather well and I have to say that he was a man who loved the trade. I know we will miss him. Our condolences to Von's family and friends, of which we consider ourselves a member. *Marc Goldberg*

## Road America Motor Club

I am interested in knowing if any other locksmiths have had a problem getting paid for services rendered to Road America Motor Club of Coral Gables, FL. I responded to a call from them in April of 1999, and billed them for \$50.00. It took the company 65-days to cut a check and then it was only for \$25.00. Upon calling the company they assured me that the balance would be mailed the following week.

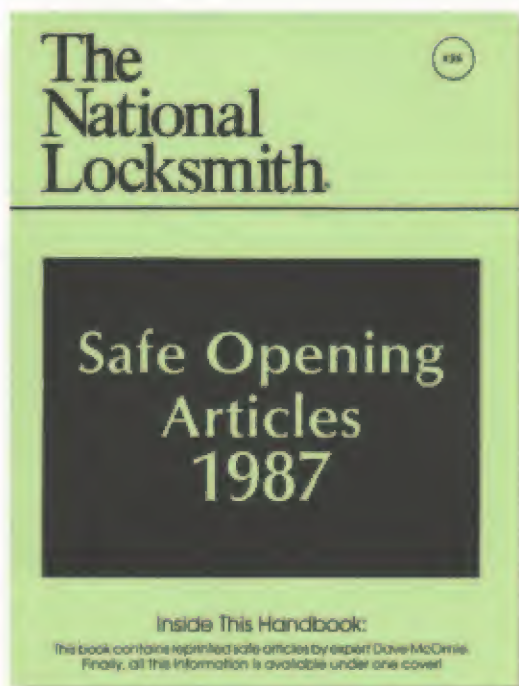
In September of 1999, they called again and requested service. I told the dispatcher that I would not take the call because of not being paid completely for the last service. The dispatcher got a supervisor on the phone and we were assured that we would be paid immediately for past and present services if we would assist them with the call. Against my better judgement we took the call and have yet to be paid by the middle of October.

We then heard from the accounting department regarding the invoices and were again assured that payment was being made on the following Monday. That was three weeks ago, and no check has arrived yet. We received another call from Road America on Sunday October 11, for car locked and running. Not wishing to have anyone lose a car by being overheated we answered the call. I then informed the owner of the car that if Road America did not pay this invoice in 30-days that I would return to them for payment, plus a \$30.00 service fee. The customer then gave me the name of the company whom they have the roadside assistance program through. I have contacted that company and they are attempting to see if they can assure payment by the contractor.

I have also suggested that they find a better contractor with a solid history of paying vendors on time and correctly. Two of the contractors I have had the best luck with are AAA Motor Club and Emergency Road Service. I have now terminated any service with Road America. If they should call in the future I will inform the customer that they must pay me and file the invoice with their Roadside Assistance Company.

*Wayne's Lock & Key*  
**TRL** North Carolina

# Safe Opening Articles 1987



Now under one cover—all the information safe opening articles by expert safeman, Dave McOmie.

[CLICK HERE TO LEARN MORE](#)



#SA - 1



# Security Café

**DROP IN FOR  
TOOLS, TECHNOLOGY  
& EQUIPMENT**

## Marks USA Monaco Design Lever Lockset



CIRCLE NUMBER  
264

Marks USA designed and is manufacturing its first decorative cylindrical lever lockset. The design matches its Monaco series of tubular locksets, but is available in most of the keyed functions. In addition, it comes in polished brass with a lifetime finish warranty. As in the other "Survivor" series, this lockset is built around the Marks USA "Clutch" mechanism for greatly extended life. Presently available in ANSI grade two, it will satisfy those applications where a decorative but reliable, heavy-duty lever lockset is required

## Abloy Super Stopper



CIRCLE NUMBER  
265

Abloy offers high security Abloy Disklock Pro drop-bolt rim lock. Model 1277D features a key lockable thumbturn and the model 1287D a regular thumbturn. Cylinder and bolt are made of hardened steel. Locks can be keyed alike and masterkeyed with other Abloy Disklock Pro locks.

## Lockmasters® New Safe Deposit Change Tool



CIRCLE NUMBER  
266

Lockmasters has combined the two most popular safe deposit lock change keys into one tool. The Safe Deposit Change Tool has a LeFebure 7700 series change on one end, and a Diebold 17570 change key on the other end. The Diebold tool will also change the Sargent & Greenleaf 4545 Series and the Ilco Unican 5400 Series. Both

change keys are machined from steel and the handle is anodized aluminum; no more broken keys! Add this tool to your nose and door puller kit and complete your safe deposit arsenal.

## Olympus 2000

Olympus Lock announced the release of the Olympus 2000, a new integrated cabinet handle and lock all-in-one unit. This product is designed to work with Olympus Lock's line of patented pin tumbler door and drawer cabinet locks



CIRCLE NUMBER  
267

## Corbin Russwin Vineyard Collection

Corbin Russwin has introduced The Vineyard Collection, a new series of designer levers, roses and escutcheons to meet the special needs of high-profile commercial buildings, which require both superior security and aesthetics. The Vineyard Collection also marks a "first" in durability. For the first time, Corbin Russwin is offering a patented lifetime Infini-T™ Finish on two of The Vineyard Collection's five architectural finishes - bright and satin brass finishes. Infini-T is created by Physical Vapor Deposition (PVD), an advanced coating technology which deposits a hard titanium alloy surface, highly resistant to the elements and daily wear-and-tear.



CIRCLE NUMBER  
269

#100, #200, #500 and #600. The new Olympus 2000 handle was developed to address situations requiring ADA compliance and, with the addition of the optional oval wire-pull, this product becomes fully ADA compatible. The Olympus 2000 handle is extremely easy to install, requiring only a notch to be cut out of the door or drawer and the handle slipped into place.

## Ilco Unican Announces New D50 & D60 Dials



CIRCLE NUMBER  
268

The Unican Lock Division of Ilco Unican proudly announces the release of two new safe dials. The D50 dial is the full configuration dial which replaces the former D20 dial, both of which are of the top reading style for privacy while dialing combinations. The D60 Dial has a smaller gripping area and like its' bigger brother is designed to convert to a key locking dial with the addition of a key cylinder.

## Videx TouchAccess™ for Multi-Lock

Videx introduces the TouchAccess lock for use with the Multi-Lock security



CIRCLE NUMBER  
270



bar. Business of all sizes can now inexpensively track and control access to file cabinet drawers. This system allows management to have control over who has access to files, what days they have access, and the specific times during those days. One of the most beneficial features of this system is the ability to download a comprehensive audit trail of the latest entries, with the specific date and time of each occurrence. With TouchAccess installed on a file cabinet, a user must first touch their unique iButton "key" to the TouchAccess lock before the security bar can be released. Once the TouchAccess lock is opened, the Multi-Lock can be released and the user has access to the files.

### Fort Knox Adds More New Features



Fort Knox has added more features and values for the Millennium. The Defender Series has been the best dollar value for the conservative collector. The standard Defender includes such features as a 1450°/50 minute fire protection, clutch drive mechanism, multi-bearing hard plate, drill deflector bolt protection and carpeted modular interior. This year Fort Knox has added additional locking bolts to

include both top and bottom of the door. The Premier package will increase the number of locking bolts to as many as 20 that extend from the front, back, top, bottom and each of the four corners at a 45° angle. This option also takes the super strong rack and pinion mechanism and beefs it up with the same 5 to 1 rack and pinion system used on the Executive and Titan Series.

### Optex Wireless Door Chime



Wireless 1000, from Optex, is a wireless chime for indoor and outdoor applications. Its wireless PIR detector is made for indoor or outdoor use and has detection patterns for doorway and driveway coverage. Just insert a 9V battery and mount the detector wherever you want detection, then plug-in the chimebox receiver to complete the installation. Features include on-off controls, adjustable volume, individual enunciation of up to three zones, an optional alarm mode, and a 1 amp form C relay.

### New DETERMINATOR™ Tools



The Car Openers®, Inc. recently introduced two new DETERMINATOR™ tools. The DETERMINATOR™ is an automotive lock-decoding tool. The two new Determinators™ are the BMW Determinator™ and the Toyota TR47 DETERMINATOR™. There are now 21 DETERMINATOR™ tools for the automotive locksmith. No more pulling door panels and going through the hassles that come with it. The unique design of the DETERMINATOR™ gives the locksmith a simple, reliable manner in which to originate keys.

### Baran/Tec Single Door Access Control



Baran/Tec Inc., now has two new 200 user code single-door access control products. The single door systems are offered in two versions: A stand-alone self-contained access keypad, and a high security, controller-based system. Increased from their original

60 user codes, these secure, reliable and convenient single door access control products utilize Baran/Tec's innovative, patented and proven piezo technology featuring rugged, sealed, one piece construction and no moving parts. The EVERSWITCH™ keypad is impervious to many harsh environments, including water, dust, sand, snow, and chemicals. These keypads can be used even if submerged in 30 feet of water or covered with ice. They are rated to operate in extreme temperatures, ranging from -40°F to +257°F.

### Kryptonite Flex Security™ Line

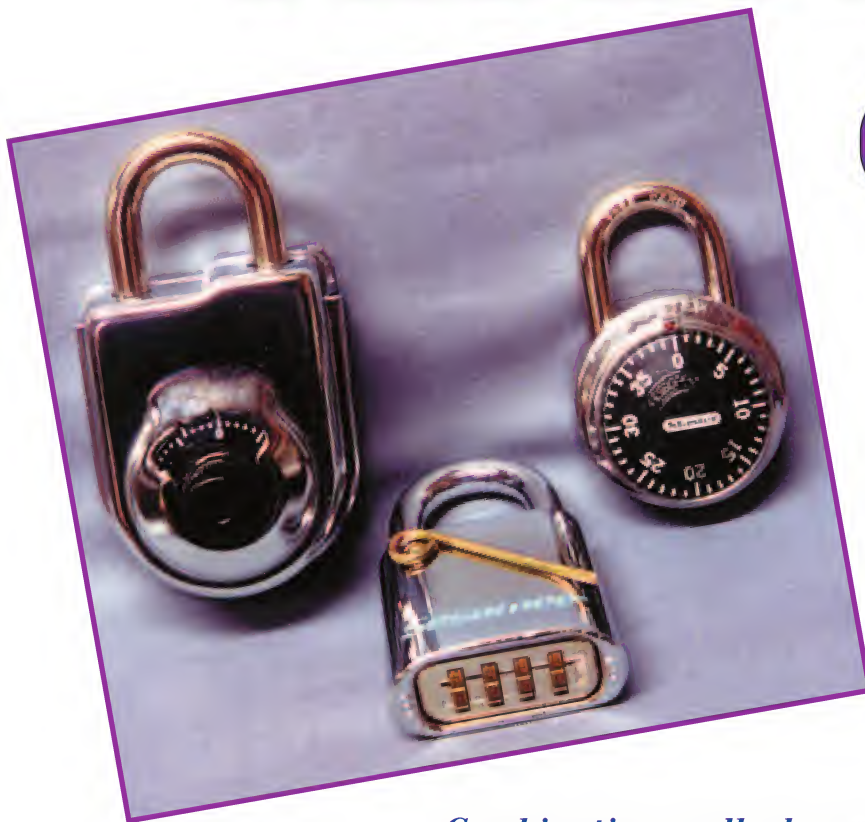


Kryptonite has introduced a new line of traditional padlocks, complete with added strength and special features, to its popular Flex Security™ product line. Kryptonite's new line of traditional padlocks includes seven categories: chrome-plated brass padlocks with tubular keyways, marine grade chrome-plated brass padlocks, brass padlocks, laminated steel padlocks, covered laminated steel padlocks, and stainless steel padlocks in both key and combination styles.

TNL



# GETTING INTO COMBINATION PADLOCKS



## PART ONE

**1.**

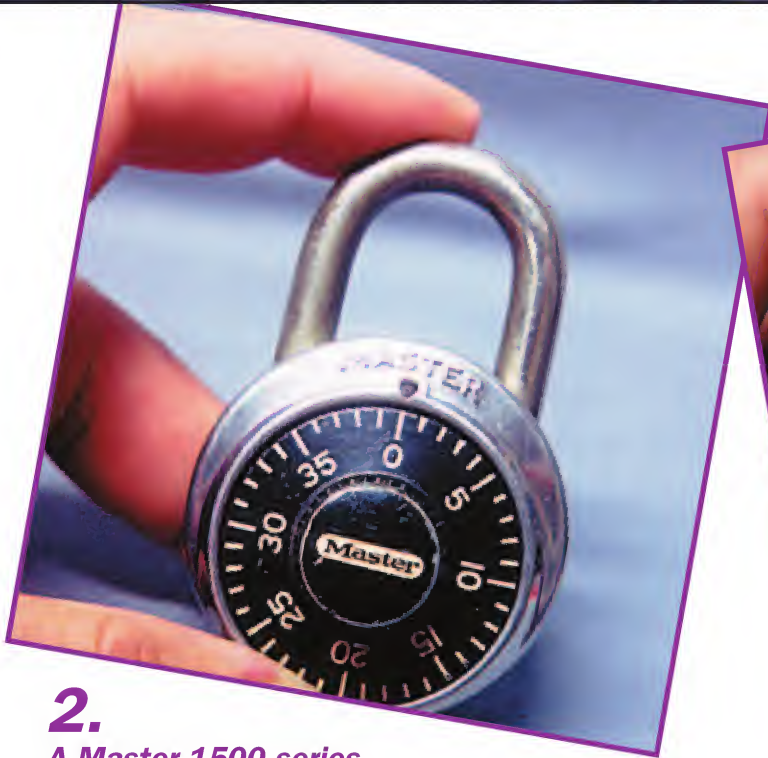
*Two dial type padlocks at the top and a resettable 4-wheel lock at the bottom.*



**by Sal Dulcamaro**

*Combination padlocks are made by many different lock companies. They are available in a variety of shapes, sizes and color finishes. The two most common types of combination padlocks are the dial type, and those with (3 or 4) individually numbered and rotated wheels. With a couple of rare exceptions, the dial combinations are almost never resettable to new combinations. Those with individually numbered wheels, on the other hand, are almost always resettable.*





**2.**

**A Master 1500 series combination padlock.**

*Photograph 1*, shows two dial type padlocks at the top and a resettable 4-wheel lock at the bottom. The dial type padlock at top left is one of the exceptions mentioned earlier. It is a Sargent & Greenleaf 8077 combination padlock that uses a change key to reset the combination, not unlike S&G's dial type safe combination locks.

While a typical (non-resettable) dial type combination padlock will tend to retail between about \$2-\$20, the resettable S&G lock will list well over \$100. The process of resetting the combination on the individually numbered wheel type padlocks is much simpler, so the cost of a resettable padlock of this type is much lower. The typical retail price range is about \$5 to \$25.

This is the first of a multi-part article series on combination padlocks. In this first part, I will mainly cover the internal construction and operation of such padlocks. In later installments, I will go into the specifics of combination changing, plus opening/bypassing and decoding techniques for various brand and model combination padlocks.

**Dial Type Combination Padlocks**

*Photograph 2*, shows a Master 1500 series combination padlock. It is probably the most common and widely sold lock of its type. I will show the inside workings of this padlock, but most aspects will apply equally to the majority of similar locks of other brands.

Typical of most combination padlocks in the medium to low price range, the Master 1500 series is not resettable. Although not designed for disassembly and servicing, this lock did come apart with the help of a bench grinder and a little bit of effort. A backside view of the padlock is shown in *photograph 3*.

Many combination padlocks will have a code number stamped on the back of the lock case, which is standard for most Master brand combination padlocks. A lost combination is usually retrievable by looking up the code

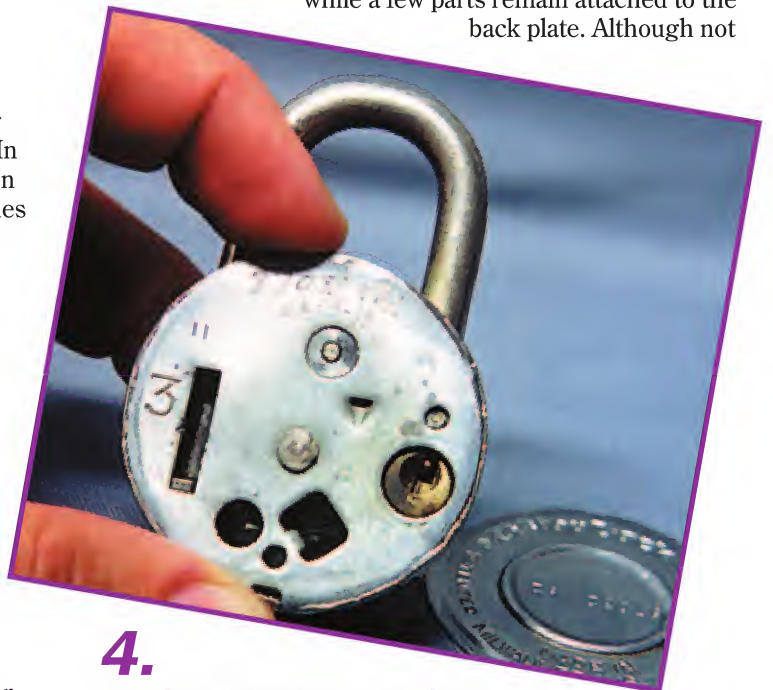


**3.**

**A backside view of the padlock.**

number in a code book or program, or by contacting Master Lock Co. and providing them with the code number. This particular lock actually has a two-part code. The code is: 87032 V62. It is a "V" series code and the first part: 87032, identifies the three number combination, which is dialed right-left-right. V62 identifies the key that operates the small pin tumbler cylinder, which can bypass the individual lock combination.

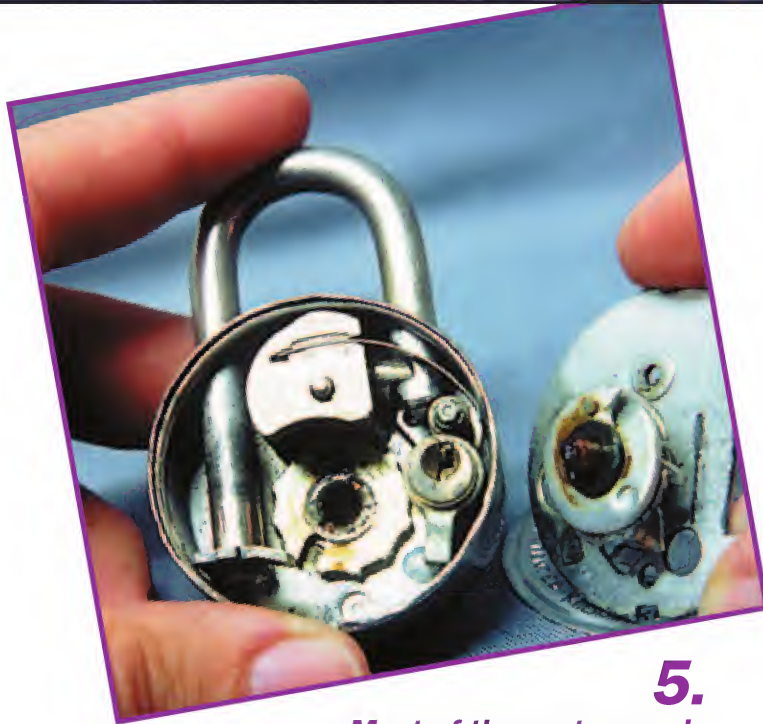
With the outer plate removed, *photograph 4* shows the inner back plate with a number of cutout openings. When that back plate is removed in *photograph 5*, you can see that most of the parts remain within the main lock body, while a few parts remain attached to the back plate. Although not



**4.**

**The inner back plate with a number of cutout openings.**





**5.**

*Most of the parts remain within the main lock body.*



**6.**

*Two of the three wheels with their gates lined up for opening.*

substantially different in concept to a safe combination lock, the individual parts tend to be much smaller.

This is a three-wheel combination lock. The drive wheel, which also decides the third (last) number of the combination, is directly tied to the motion of the dial. It remains within the padlock body. The deep cutout slot (or gate) in that wheel, is pointing in the direction of about 7 o'clock. For the actual unlocking, the gate would more likely be positioned at about 11 o'clock.

A series of (shallow) false gates can be seen around the circumference of the drive wheel. They are designed to deceive or slow down someone trying to manipulate and feel the true gate to find the correct combination.

22 • The National Locksmith

The remaining two wheels of the combination are attached to a post that is riveted to the back plate. They spin freely like wheels on an axle. The round shaped raised spot on the drive wheel is a drive pin. Only the motion of the drive wheel is directly caused by turning the dial on the face of the padlock. The other wheels are only moved indirectly from motion transferred (by way of the drive pins) from one wheel to the next. If the back plate was reattached, the exposed end of the post would fit into the hole in the drive wheel.

A tension spring, between the two wheels and the back plate keeps all the wheels together so that motion can be transferred from the drive wheel to the remaining wheels on the post.

### ***The Mechanics of Dialing***

The combination of this particular lock is 26-4-18. The three numbers of a combination lock are normally dialed right-left-right. The gates in all three wheels have to line up under a part in the padlock equivalent to the fence on a safe combination lock. Because only the drive wheel is directly controlled by the dial, specific numbers of rotations (in the proper direction) must be made to move all three wheels into position for unlocking the padlock.

Starting to the right (clockwise), the first rotation of the dial moves the drive wheel so that its drive pin will make contact with the drive pin of the next wheel. The second rotation moves that wheel until its drive pin picks up the drive pin of the last wheel. The third rotation moves the last wheel so that its gate is positioned directly under the fence.

Changing directions, the dial is then turned to the left (counterclockwise). Because the drive wheel is directly attached to the dial, turning the dial to the left immediately moves the first (drive) wheel to the left. At the start of the first rotation to the left, the drive pin of the first wheel loses contact with the drive pin of the second wheel.

Toward the end of the first rotation, the drive pin of the first wheel will again make contact with the drive pin of the second



**7.**

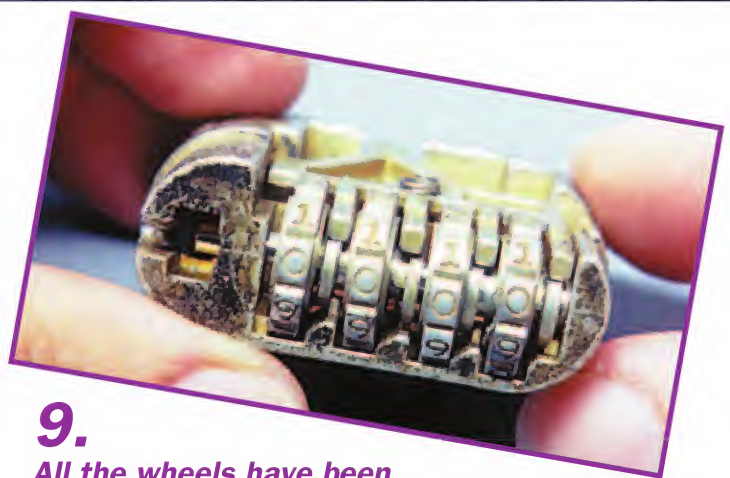
*The keyed bypass operates a spring-loaded catch.*





8.

***The inside mechanism of a Master resettable combination padlock.***



9.

***All the wheels have been rotated to the combination for opening.***

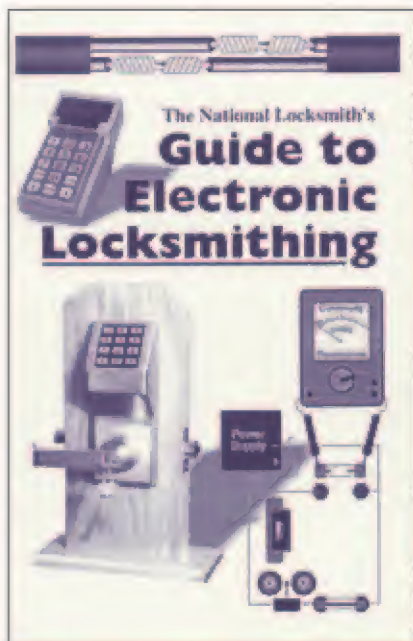
wheel. This time, however, it will make contact on the opposite side, since it is moving in the opposite direction. The second rotation to the left will then pick up the second wheel and move it so that its gate will lie under the fence, just the same as the third wheel, which was already positioned. When the wheel is set, stop rotating to the left. If you continue rotating to the left, you will eventually pick up and move the third wheel out of position. Then you'd have to start back at the beginning and redial your combination.

With two wheels set with their gates under the fence, you are ready to change direction again. When you turn right this time, there will only be the first (drive) wheel left to position for opening. Because the only remaining wheel happens to be attached to the dial, there will be no need for

additional turns to pick up and move another wheel. The last motion is to turn the dial to the right until the gate of the remaining wheel lies under the fence. It should always take less than one full turn to position the wheel properly. If you rotate the dial more than a full turn, you will pick up the second wheel and move it out of the correct position.

With the back plate off again, [photograph 6](#) shows two of the three wheels (all but the drive wheel) with their gates lined up for opening. The motion of pulling out on the shackle would move the fence into the gates of the three properly lined up wheels, and move the locking pawl and catch mechanism out of the path of the shackle so that it would unlock.

In [photograph 7](#), my tool is pointing to the part, which is



## Electronic Locksmithing

Everyone knows there's big money in selling, installing and servicing electronic security such as mag locks, electronic strikes, and simple access control.

[CLICK HERE TO LEARN MORE](#)

#EL - 1







**10.**

**All the wheels and cams rotate on a single short metal shaft.**

moved by the keyed bypass lock cylinder to allow opening without dialing the combination. All it does is push back a spring loaded catch mechanism. It does not position the three wheels required for normal opening.

### **Resettable Numbered Wheel Combination Padlocks**

The typical resettable combination padlock will have three or four individually numbered wheels. Most locks of this type have each wheel numbered 0 to 9. With ten different possible combinations per wheel, a three wheel lock can have 1,000 possible different combinations, and a four wheel lock can have 10,000. *Photograph 8*, shows the inside mechanism of a Master resettable combination padlock. This portion of the lock is normally found inside the main lock body or case. With a few variations, what you see for this lock will apply to most combination padlocks of this type.

To the right of each wheel is a detachable cam with a flat spot on an otherwise circular shaped part. Most locks of this type come factory set with all zeros for the combination. This lock is still set to 0-0-0-0 as its combination for opening. The first wheel has been rotated slightly to give a better view of the flat spot on the cam.

In *photograph 9*, all the wheels have been rotated to the combination for opening. All the flats of the cams point upward and the four legs of the locking plate



**12.**

**The legs of the locking bar must rest on the flat spots of the cams.**



**11.**

**The wheels and cams are separate parts.**

have dropped into the flat spots. As we saw in *photograph 8*, all it takes is one wheel out of position for the round shaped portion of a cam to lift the plate and keep the padlock locked.

All the wheels and cams rotate on a single short metal shaft. The shaft with wheels and cams have been removed as a complete assembly, in *photograph 10*. It is much more apparent that the wheels and cams are separate parts, in *photograph 11*, even though they move together as if a single unit during normal operation of the padlock.

The basis for changing the combination can be seen in *photograph 12*, with side views of a wheel and a cam. The legs of the locking bar



**13.**

**The position of the locking plate when the padlock is normally locked.**



must rest on the flat spots of the cams for the padlock to open properly, so the cams are always positioned in the same way regardless of the opening combination currently set. The combination in relation to the cam's alignment never changes.

Because the wheel has ten internal notches, it can lock into the cam in ten different positions. By repositioning the notches in the wheel related to the cam, we can cause any of ten possible spots on the wheel to face outward. After a combination change, the lock will open with whatever number was facing forward when the wheel and cam were reconnected.

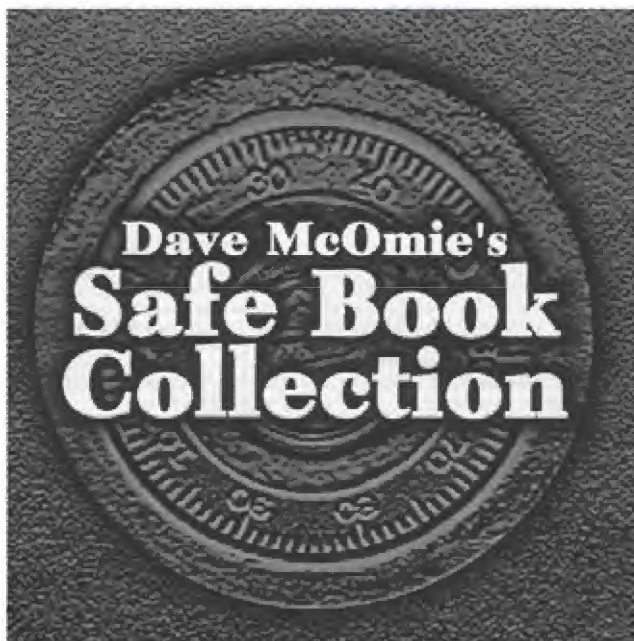
*Photograph 13*, shows the position of the locking plate when the padlock is normally locked. My thumb is pulling down the top side of the plate, but normally the round surfaces of the cams would push up on the legs of the locking plate. When the flats are pointing upward, the spring of the locking plate will try to pull the four legs downward to unlock the padlock.

If you've ever used one of these types of locks, you will know that you must push the shackle inward before the padlock will unlock. The spring-loaded bolts that catch the shackle actually bind and grab the narrow top end of the locking plate, because of the upward pressure of the shackle spring. By pushing in on the shackle, you release the binding pressure and allow the spring on the locking plate to pull the legs into contact with the flats of the cams. Moving the wheels to the correct combination, alone, will not unlock the padlock. You must follow that by pushing in on the shackle, and it will then unlock. *Photograph 14*, shows the locking plate positioned for unlocking.



**14.**  
*The locking plate positioned for unlocking.*

Combination changing will vary from brand to brand, depending on the process involved for disengaging and reengaging the wheel and cam assemblies. I will go into the specifics (by brand) of combination changing, opening and decoding starting in the next part of this series. **TNL**



## Dave McOmie Safe Book Collection on CD

This CD contains every book Dave has ever published.

[CLICK HERE TO LEARN MORE](#)



#DMCD - 1



# Toys for Big Boys

by Tom Lynch

When I was a small boy I can remember scanning through the back pages of Marvel comic books; reading all those tempting ads promising you free stuff, big muscles and X-ray vision! Nothing was more thrilling than jumping off the school bus and checking the mailbox to see what magical surprise arrived that day.

I can still remember how excited I was when a pair of X-ray vision glasses arrived. The world was going to be my oyster! How clever I was going to be. I would be able to see through people's clothes and see their skeletons. I would look through walls and find hidden secrets. When I opened the package and removed these glasses I was in awe!

The glasses had bright colorful spirals for lenses with a bright red center. The instructions told you to put on these miracles of technology and raise your hand in front of you and you would see your bones. As I stood there looking like some space cadet, I realized my dreams had been dashed. These glasses were nothing more than psychedelic designs and a birds feather! The disappointment lasted only as long as it took for me to notice the mailman arriving with another delivery.

Well, it's years later and I still enjoy the thrill of finding those special items that offer spectacular results. However, my purchases are scrutinized with greater wisdom. But, the excitement is still the same. Recently I purchased two items from Lockmasters Inc. in Nicholasville, KY. The first was a product called "The Clam", part #LKM2092. (See photograph 1.)

## The Clam:

The purpose of The Clam is to provide you with an exact image of a key, allowing you to cast a usable replica. The kit consists of:

- Small plastic clam
- Modeling clay
- Talcum powder
- Warmer candle
- Stainless steel spatula
- Ladle
- Woods metal
- Case & Instructions

After a short introduction I was casting key images flawlessly. By simply filling both cavities of the Clam with the modeling clay and applying the talc included, I was able to make an impression of a key with little effort.

First, you needed to fill The Clam with the modeling clay. (See photograph 2.) Using the steel spatula, I skimmed off any excess across both sides of The Clam, leaving a smooth surface. (See Photograph 3.) Next sprinkle a coating of baby powder over both clay surfaces to prevent the clay from sticking together when it closes. (See photograph 4.) The Clam is now prepped for a key impression. (See photograph 5.)

Place the cut key on one half of The Clam as shown in photograph 6. With both sides of The Clam closed around the key, squeeze together to complete the impression on both sides of the modeling clay. (See photograph 7.) Clean off any excess clay around the key bow with the spatula.

After opening and removing the cut key, I inserted the tip of the key into the small area towards the hinge of

The Clam and pressed an impression of the key profile. (See photograph 8.)

The kit comes with a candle that is used to heat the bottom of the ladle in



1. The Clam Kit #LKM2092.



2. The Clam with modeling clay.



3. Filled with clay and cleaned with spatula.



*photograph 9.* When it becomes hot enough, the supplied woods metal stick can be placed into the cup and melted to provide a molten liquid. This is used to cast a key in the clay. When pouring this liquid into The Clam,

always use something to protect your hands from the hot pour. (*See photograph 10.*)

After a minute or so, The Clam can then be opened to reveal your new key replica (*See photograph 11.*) If you look closely, you will notice the two lines or channels at the tip of the key. These are grooves that allow excess air to escape during the pour. Any material attached to the new key can be easily cleaned off with a file.

The accuracy of the cast was remarkable. After doing

this I realized the benefit of such a product. By quickly making an impression of a key I now had the option to identify the blank, cut depths and possibly make a code key at my convenience. I could also cast a working replica, which could be used on a limited basis. I may also use the cast replica as a pattern to duplicate an operating key.

The potential of this kit is only limited to your imagination. Not only does it provide a convenience for you, but also your customer. I have used this in situations where someone had a key that was rare and was unable to relinquish it, since it was the last one



4. Prepped with baby powder.



5. The Clam prepped for impression.



6. Place key into Clam.



7. Squeeze Clam Shut to make impression.



8. Impression a key profile.



9. Heat the Woods Metal into a liquid.





10. Pour the hot liquid into the Clam.



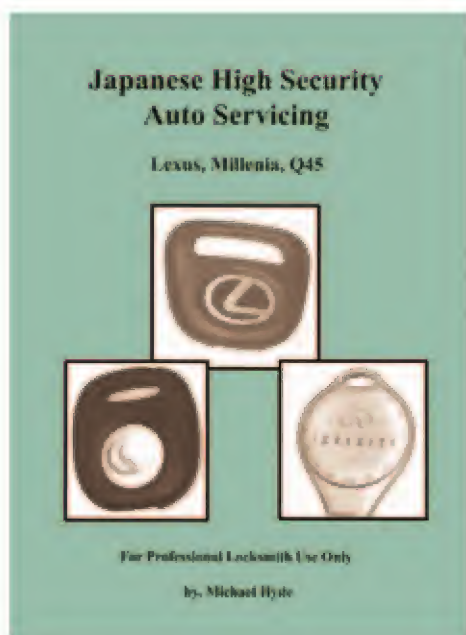
12. UV System #SVU2010UV.



11. The key looks as good as new.



13. 3-in-1 Fluorescent lamp.



## Japanese High Security

Some of the most profitable cars are also the trickiest to work on.

[CLICK HERE TO LEARN MORE](#)



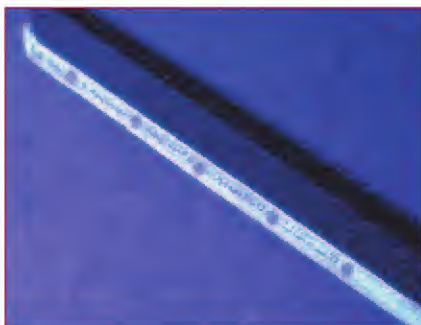
#JAP - 1

January 2000 • 29





**14. Glows a soft purple in the dark.**



**15. Pin marks are seen as small black dots.**



**16. Continue using the fluorescent marker to enhance the impression marks.**



**17. The completed Schlage blank.**

they had. Being miles away from my technical library, I simply explained to the customer that it was no problem for them to maintain custody while I found the blank and made a copy for them. Just think of how happy you would make your distributor when you walk in with an actual sample of the key your searching for, rather than a scribbled hieroglyphic on tissue paper!

## **The UV System:**

The second item I purchased that will be discussed is the "UV System" part #SVU2010UV for key impressing, also supplied by Lockmasters. (See *photograph 12.*) This kit consists of a 3-in-1 flashlight that can be use as a standard flashlight, a white florescent light or a black florescent light for key impressing. (See *photograph 13.*) It also comes with a fluorescent marking pen that you rub down the uncut edge of a new key blank, which will glow a soft purple when placed under the fluorescent lamp. (See *photograph 14.*)

To use the UV System when impressing, run the fluorescent marking pen down the length of the key blade. Next, inserted into a lock cylinder and begin your impressing action as usual. When you withdraw the key the impression marks will be enhanced when placed under the black fluorescent light, indicating the positions to file. (See *photograph 15.*) The marks are small, but noticeable, especially when using an Optivisor magnifier.

After making your initial cuts, continue to use the fluorescent marker to enhance the impression marks. (See *photograph 16.*) Every time the key in inserted in the cylinder and removed, the fluorescent marker will diminish due to the scraping of the tumblers against the key.

The UV System was tested on a Schlage 5-pin cylinder with good success. The completed Schlage blank can be seen in *photograph 17.*

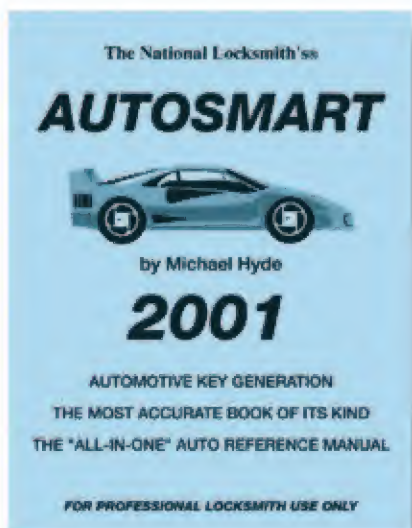
For those of you who are not impressing masters, this product will help you identify what the marks look like and where they mark on specific cylinders. This system can be used in daylight, but it's more beneficial at night or in a darker environment.

## **Conclusion:**

There were no disappointments here. Both products performed as promised, and their cost was minimal. With The Clam I gained no physical muscles, but I did gain greater competitive strength in customer care and problem solving. As far as the X-ray glasses are concerned, the UV System was as close as it comes, and all I could see was cash!

For more information on The Clam or the UV System, contact Lockmasters at: (800) 654-0637 or circle 276 on Rapid Reply. **TNL**

# **AutoSmart**



**A MUST  
for every  
locksmith!**

**CLICK HERE TO LEARN MORE**







by  
**Bob Sieveking**

## DAEWOO A New Introduction from Korea

I have received many questions and requests for specific information on the Daewoo auto over the last few months. This article should answer most of your questions. The information will allow you to service these autos, to the limit of the parts and key availability.

The Daewoo name may be familiar to those that purchased them, but it doesn't seem to ring many bells in the parts houses that carry keys or service parts. At the time of this writing, I have been told that their introduction into the market has not been sufficient to warrant manufacture of after market keys. From Daewoo, 15000 vehicles (combined, of the three models) have been sold in North America. At this time, I can only offer the dealership as a source for keys. The keys listed for the different models are steel, and sell for \$5.00 each. The Silca numbers shown are good, but I don't have a source for Silca in this country. Ignitions are available through ASP, at a much better price than the dealer is offering.

I have been informed that the model year 2000 Daewoo autos will have different keys. The word is, that they will be transponder based.

**TIP:** If you are connected to the internet, and you are engaged in auto lock repair and replacement, you will find this site very interesting. It is: [www.carlocks.com](http://www.carlocks.com). This is the ASP site. I got a nice download of their "Vehicle Model Update" for locks and service parts. Look for changes in the 98-99 "All New" items list. The file was Microsoft 98, so I had to go to Microsoft for the converter. There is a free "Word 97-98 converter" in the Microsoft download page. You will need it if you are using Word V 5.1 to 6.x on your computer. The trip was worth the trouble, and the tables are beautiful. No prices, just info.

I understand that Daewoo was introduced into the Australian market in 1994. Daewoo produced the Pontiac LeMans for GM, from 1988 to 1995. Daewoo for the European Market will be found to use a German lock, much like the BMW.

After reading the financial and drivers reviews of the Korean manufacturers including Daewoo and Hyundai, I thought I had better get this article written and published before they closed their doors. Before long, I fear that their name will join the Tucker, DeLorean, and Yugo, in terms of its popularity.

Daewoo USA was introduced in three models. They are: the Leganza (see photograph 1), the Nubira (see photograph 2), and the Lanos (see photograph 3). The Leganza is the top

of the line Daewoo. The Nubira is the mid range, and the Lanos is the least expensive model.

### SIMILARITIES

All but the very least expensive Lanos will have as standard equipment: driver and passenger side air bags, anti-



**1. The Leganza.**



**2. The Nubira.**

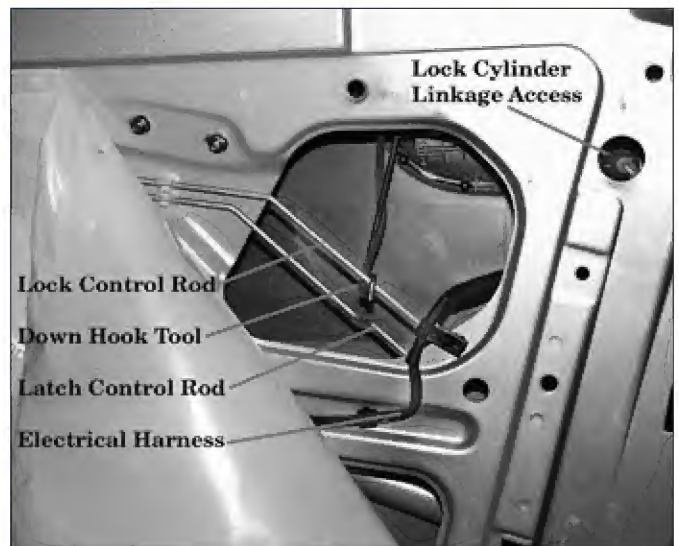


**3. The Lanos.**





**4. An inside view of the passenger door of the Leganza.**



**5. Inside of the door with the trim panel removed.**



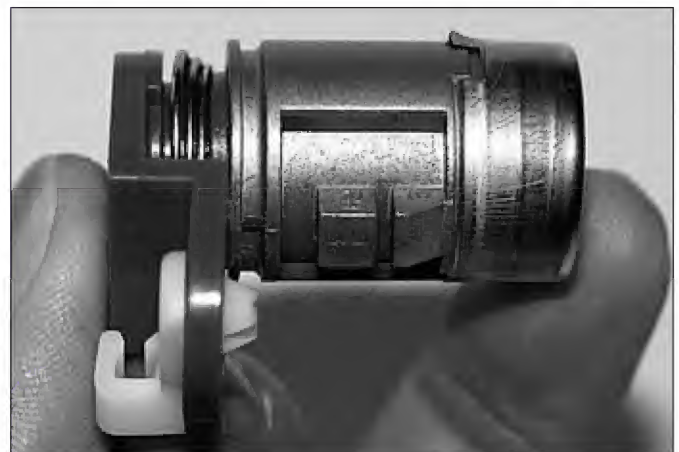
**6. The linkage arrangement behind the lift handle on a Leganza.**

theft system, power door locks, and remote keyless entry. If you open any one of these vehicles without using the key, you will set off the alarm. To silence the alarm, close the door and cycle the key in the door cylinder to the locked position, and back to unlock.

Mechanically, the doors of all three models are very much the same. They are all horizontal linkage type doors. *Photograph 4*, shows an inside view of the passenger door of a Leganza. Note that the door lock button is at the rear of the latch lever assembly. The flip lever moves fore and aft to lock and unlock.

## VEHICLE OPENING

*Photograph 5*, shows the inside of the door with the trim panel removed. The linkage, as you can see, is not shielded. The lock control rod is the top rod. The lower rod is the latch control rod. Wedge the glass to open the space between the glass and the trim molding, and insert the opening tool about ten inches from the back of the door. The front edge of the



**7. The passenger door cylinder.**

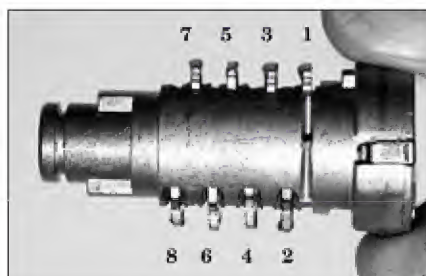
exterior lift handle assembly is about ten inches from the rear of the door. A simple down hook opening tool was used to move the lock control rod forward, to unlock the door.

These autos should pose no special challenge to the experienced locksmith.

The lock cylinder cams, at the rear of the door lock cylinders found on all three models, are plastic "fixed cam" type. You will not be able to unlock or open these doors by moving the linkage from the lock cylinder to the latch box. The wafer type locks on the ignition, doors and trunk use serrated wafers. They are very difficult to pick or impression.

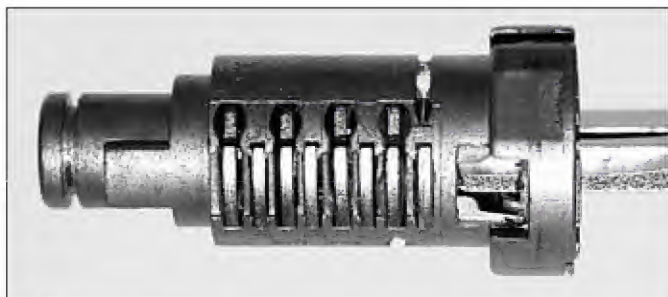
*Photograph 6*, shows the arrangement of the linkage behind the lift handle (Leganza shown). This is basically the same on all models. The lock cylinder removes out the rear of the handle assembly. It is retained by a wire retaining ring.

To remove the cylinder it is necessary to disconnect the latch release link at the handle. It passes behind the cylinder and prevents the cylinder from sliding out far enough to be removed. Also disconnect the lock cylinder link. You will not need to completely remove the cylinder retaining ring. Pull or pry the ring down. The split at the top of the ring will spread far enough to slip the cylinder out the



**8. The door cylinder plug.**





**9. Key inserted into the plug and wafers at shear line.**



**10. The wafers that you will find in these locks.**



**11. Here is a number three and a number four wafer together.**

rear of the handle assembly.

### **DOOR LOCK CYLINDER**

Sorry boys, there is no code to be found here. No codes were found

on the door cylinders, trunk, or ignition cylinder. The left and right door cylinders are also not interchangeable. The cylinder cases are handed.

*Photograph 7*, shows the passenger door cylinder. Notice the plastic cam and easy off cap. The cap is retained by two crimped spots at the skirt of the cap. Lift the crimp with a small straight blade screwdriver, and the cap will slide off of the cylinder. The dust shutter assembly need not be removed, as it clips to the face of the lock plug.

*Photograph 8*, is the door cylinder plug. The Daewoo locks use an opposing tumbler arrangement. In the door cylinder, you will find all eight wafers. If you are reading the wafers through the keyway, you will find wafers 1-3-5-7 at the bottom of the keyway, and wafers 2-4-6-8 at the top of the keyway.

*Photograph 9*, shows key inserted into the plug and wafers at shear line.

The wafers used in the Daewoo locks are numbered to identify the depth of cut. A #1 depth is the shallowest, and a #4 is the deepest. *Photograph 10*, shows the wafers that you will find in these locks. If you are called to recombine these locks, use ASP keying kit "A-13-101." The door, trunk and ignition wafers are all the same. You can not read the numbers on the wafers in the keyway. The numbers will appear on the backside of the wafer when installed in the plug.

### **WAVER LOCK READING**

For those locksmiths that read wafer locks, it is important to note that the #3 and #4 wafers will read the same. You will be able to tell the difference between the #1, #2, and #3 wafers in the keyway, but



**12. The glove box lock.**



**13. The inside of the trunk cavity.**

the #3 and #4 wafers appear to be the same height. Study the widths of the spring ears on the wafers in *photograph 9*. You can see that the spring ear on wafer number #4 is deeper than the ears on any other wafer.

In *photograph 11*, I am holding a number three and a number four wafer together. You can easily see the difference in the tops of the spring ears. This was done, to my estimation, to lower the height of the wafer biting in the keyway, which would allow the key to be inserted more easily. The top of the spring ear contacts the lock case (shell) as it is forced out of the plug by the wafer spring. It never fully rises to allow the top of the wafer to contact the top of the wafer compartment of the lock case, as all other



**14. The trunk lock cylinder removed.**

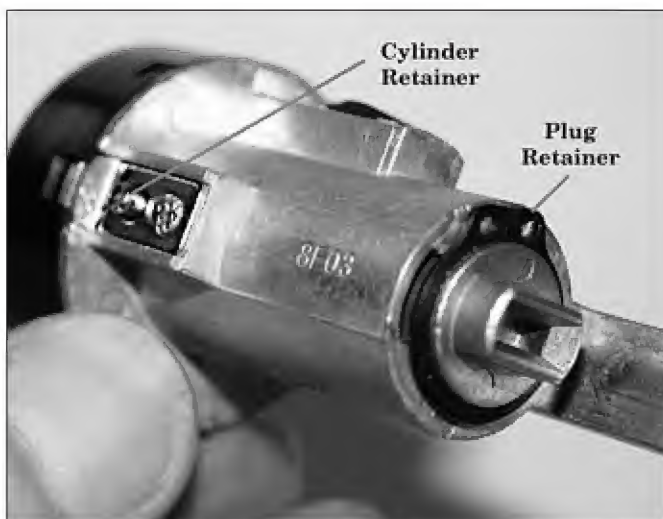




**15. You can easily see all eight wafers through the drain hole.**



**16. Rotate the key to the "ACC" position, and depress the spring loaded cylinder retainer to remove.**



**17. The plug retainer and the cylinder retainer can be seen.**

wafers will do. The end effect, for the locksmith trying to read the relative heights of the wafer bittings in the keyway, is that a #3 and a #4 look the same in the keyway.

Reading the Daewoo cylinders is more difficult than most, but still not impossible. Solution; use half cuts in positions that show a #3/#4 depth, then impression to find the deeper cuts. A #1 depth is even with the top of the major ward, in the keyway.

### **GLOVE BOX LOCK**

The glove box lock shown in *photograph 12*, is not easily removed. Two screws will remove the lock from the glove box lid, but further disassembly is not recommended. It contains wafers in the last four positions (5-6-7-8), at the tip of the key. You will be able to read the numbers on the wafers from the rear of the lock cylinder. This might be an easy method for determining the last four cuts of the key.

### **TRUNK LOCK CYLINDER**

My preferred method for originating a key to these vehicles is through the trunk cylinder. You will find that all Daewoo autos have drop down rear seat backs. Release the seat back latch, and fold the seat forward, to have access to the trunk. *Photograph 13*, shows the inside of the trunk cavity. With the driver's door open, there is a nifty light (in

the Leganza only) which illuminates the trunk. Note that there is no cover over the lock or linkage. Only the Nubira will have a plastic shield over the lock area. Remove the shield to gain access to the rear of the lock cylinder. The trunk cylinders have fixed cams, just like the doors, so you will have to disconnect the lock linkage to

open the trunk. Disconnect and lift the linkage to unlatch the trunk lid.

The trunk cylinders of all three models can be removed from the inside of the trunk lid. There is no need to remove the outside trim. Remove the 10mm metric nuts from the two locating studs, then remove the lock cylinder.



**18. The ignition cylinder plug removed.**



DAE	Daewoo, Leganza	1998-99	DW03
Face caps ASP,AL,B&S	codes V0001-1200		
ign N/R	valet -		
dr easy off cap	Baxter none		
tnk no face cap	NL:HPC none		
Keying kit ASP,AL,B&S	Reed Ldgr 2/99, pg96		
ign A-13-101	Curt 21227 1200 CF302 Ilco		
dr+ A-13-101	DW-1 DW-1C ctr CW-47MC EZ		
Gaug shldr Korea	cutr 15W-45 space--depth Tay		
ITL #517 -lit3 -ins2	tumbler .106 1 .322 B&S		
PAP -	ign 12345678 .188 2 .299 B&S		
MAX DSD#238	dr 12345678 .270 3 .275 Curt N/A		
T / -	tnk 12345678 .353 4 .251 SIL DW04R		
	gb *****5678 .435 5		
Framon:S-B .0825 4 .0237	.517 6		
G-Key FGK276A All	.600 7		
Keys? Daewoo PN# S6460036 (steel blank)	.682 8		
Read, no impression, no codes found on any cyl.	9		
trunk release by drivr seat or flip down rear	10		
seat, remove and read tnk cyl. through the drain	11		
hole. L.A., CA 1-323-857-9100,	12		
Arlington Hts, IL 1-847-368-3100	8wafer Sub.		

**A. Leganza spec information chart.**

*Photograph 14*, shows the trunk lock cylinder. Do not loose the weather seal gasket.

With the trunk cylinder out of the trunk lid, you can easily see all eight wafers through the drain hole. (See *photograph 15*.) Use depth and space or pattern keys to read the wafers, or insert a blank key and read the depths as you would with any wafer lock. There are four depths. Using pattern keys to read the tumblers will save you a blank, now and then, but it is not necessary.

### IGNITION LOCK

The ignition found in Daewoo autos is removed by rotating the key to the "ACC" position and depress the spring-loaded cylinder retainer. (See *photograph 16*.)

DAE	Daewoo, Nubira	1998-99	DW01
Face caps ASP,AL,B&S	codes J0001-1200		
ign N/R	valet -		
dr easy off cap	Baxter none		
tnk no face cap	NL:HPC none		
Keying kit ASP,AL,B&S	Reed Ldgr 2/99, pg96		
ign A-13-101	Curt 21227 1200 CF302 Ilco		
dr+ A-13-101	DW-1 DW-1A ctr CW-47MC EZ		
Gaug shldr Korea	cutr 15W-45 space--depth Tay		
ITL #517 -lit3 -ins2	tumbler .106 1 .322 B&S		
PAP -	ign 12345678 .188 2 .299 B&S		
MAX DSD#238	dr 12345678 .270 3 .275 Curt N/A		
T / -	tnk 12345678 .353 4 .251 SIL DW04		
	gb *****5678 .435 5		
Framon:S-B .083 5 .0237	.517 6		
G-Key FGK276A All	.600 7		
Keys? Daewoo PN# S6460029 (steel blank)	.682 8		
Read, no impression, no codes found on any cyl.	9		
trunk release by drivr seat or flip down rear	10		
seat, remove and read tnk cyl. through the drain	11		
hole. L.A., CA 1-323-857-9100,	12		
Arlington Hts, IL 1-847-368-3100	8wafer Sub.		

**B. Nubira spec information chart.**

In *photograph 17*, you can see the plug retainer and the cylinder retainer. The number stamped on the cylinder body is not a code. This is very similar to the Toyota arrangement. The retainer is located at the front of the cylinder on the under side of the ignition housing.

This ignition is very difficult to remove without a key. With the ignition out, the black plastic bezel can be easily removed. Be careful not to break the bezel skirt when removing it. Remove the plug retainer clip ring to free the plug from the cylinder body. Without a working key in the ignition, you will need to pick the wafers from front to back, as the plug is being slid out the front of the cylinder body.

*Photograph 18*, shows the ignition cylinder plug removed. The ignition uses all eight wafers. If we were recombining



## GM Steering Column Course

Comes complete with take-home test so you can become certified on GM steering column service! Authoritative training on every domestic GM column from 1967 to 1995.

[CLICK HERE TO LEARN MORE](#)



DAE	Daewoo, Lanos	1998-99	DW02
Face caps ASP,AL,B&S	codes T0001-1200		
ign N/R	valet -		
dr easy off cap	Baxter none		
tnk no face cap	NL:HPC none		
Keying kit ASP,AL,B&S	Reed Ldgr 2/99, pg96		
ign A-13-101	Curt 21227	1200 CF302	Ilco
dr+ A-13-101	DW-1 DW-18	ctr CW-47MC	EZ
Gaug shldr Korea	cutr 15W-45	space--depth	Tay
ITL #517 -lit3 -ins2	tumbler	.106 1	B&S
PAP	ign 12345678	.188 2	B&S
MAX DSD#238	dr 12345678	.270 3	Curt N/A
T / -	tnk 12345678	.353 4	SIL DW05R
	qb ****5678	.435 5	Jet
Framon:S-B .083	5 .0237	.517 6	VALET
G-Key FGK276A	All .600	.600 7	Ilco -
Keys? Daewoo PN# 56460019 (steel blank)	.682	.682 8	EZ -
Read, no impression, no codes found on any cyl.,			SIL -
trunk release by drivr seat or flip down rear			Curt -
seat. remove and read tnk cyl. through the drain			
hole. L.A., CA 1-323-857-9100,			
Arlington Hts, IL 1-847-368-3100	8wafer	Sub.	

### C. Lanos spec information chart.

this ignition, it would be a very simple job to remove the ignition and disassemble the plug from the cylinder for service.

## CODES AND SERVICE INFORMATION

The National Locksmith "InstaCode" software program lists the codes and key cutting information for all three code series. The Leganza uses code series V 0001-1200. The Nubira uses code series J 0001-1200. The Lanos uses code series T 0001-1200. The code series are the same. The letter prefix indicates a specific blank to be used.

The following charts should answer any other specific

questions you might have as to the specs for each model.

Leganza

Illustration A.

Nubira

Illustration B.

Lanos

Illustration C.

## SUBSTITUTE KEY BLANKS

With this information, you should have no problem servicing the locks. The keys shown here are still only available from the dealer. You may be able to modify the following keys to make an emergency substitution. I offer the following key substitution information without any guarantees and for emergency use only:

Leganza - X176, X245

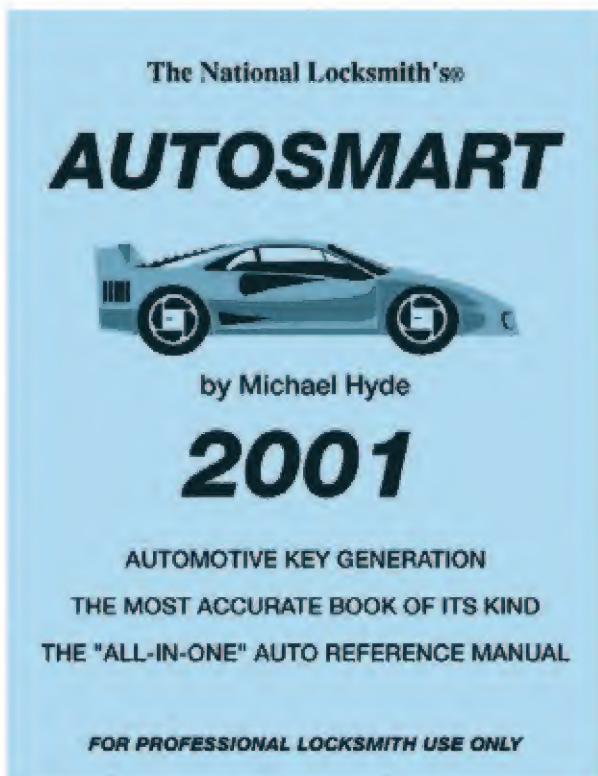
Nubira - X174, X211, X232

Lanos - X174, X211, X232

Modification of the tip, or widening of the grooves will be necessary to make these keys enter the keyway. The overall width of the uncut substitute key is different from the original, so you will want to guide on the offset of the key when cutting.

Good luck.

**TNL**



# AutoSmart

## A MUST for every locksmith!



**CLICK HERE TO LEARN MORE**



In 1981, back a couple of decades ago—which is something I can hardly believe, but that is another story—I came into the locksmith industry as a representative calling on locksmith distributors. Although I have been your publisher for many years now, my real entry into the industry was calling on wholesalers, and I still have a soft spot for them in my heart.

Over the years, many facets of the locksmith industry have changed enormously. Some of those changes have involved the distributor. Back when I first came in, there were hardly any companies who you could really call national distributors. In fact, there weren't all that many who sold to a large multi-state territory either.

One of the first that I recall was Zipf Lock Co. in Columbus, OH. Bill Zipf was also among the first wholesalers to really get into computers. I recall visiting his warehouse, and it was the first time that I had ever seen a whole room completely dedicated as a computer room. It even had its own air conditioning system, because this computer was a Monster, taking up half the wall and generating a great deal of heat.

I am sure that the system I am telling you about probably cost tens of thousands of dollars, even in 1981. And, the \$1,000 Pentium class PC I am word processing on right now probably has 100 times the power and speed of that old main frame. Nonetheless, in the last twenty years all distributors went on computer, and this gave them better control over their inventory, and gives you much speedier access to shipments which you need.

Perhaps in part, this additional computer power was what helped many distributors tackle both larger regions in which to sell, and then also become national in scope. As big distributors got bigger, the small and medium companies also had to make many major changes.

Do you remember a time when you could call most any wholesaler and get the owner to pick up the phone without going through a voicemail or a bank of secretaries? I believe this access has gotten rarer as consolidation in wholesaling has somewhat reduced

# Distributors BIG and small

by Marc  
Goldberg

the number of smaller players, and made many of the big guys bigger.

**A**dvantages come with buying from large wholesale companies. But also don't forget the value of dealing with those distributors which are still family operated and concentrate heavily on service. Those are the guys who will often jump through hoops to get you missing parts when you need them, or will source the impossible just to make you happy.

I remember one of the first sales calls I ever made by myself. I had driven all the way from my home in Philadelphia to call on Lloyd Lopez of Yohar Supply in Elyria, OH. There I was, all dressed up in my rumpled suit. (Thankfully I only have to dress up rarely these days, for shows.)

Loaded down with samples, cases and literature, Mr. Lopez was cordial as I gave him a presentation on all my products which lasted somewhere around 45 minutes. Then he shook my hand, and helped me back to my car with all my many samples.

Just as I thanked him for the time, and shook his hand, Mr. Lopez said, "Marc, you forgot something."

I looked in my car. I had all my cases, samples, etc.

"No, Mr. Lopez, I think I have everything."

"Marc," he repeated, an evil twinkle in his eye, "you forgot something important."

Well, after taking mental inventory again, I stated flat out that I hadn't forgotten anything.

That's when Mr. Lopez said, "Yes you did. You forgot to ask me if I want to place an order!"

**W**ell, when I managed to stop stammering I asked him if he wanted to place an order, and of course he said that he did. But then he added, "I'm going to call the factory to place this order. You're going to thank me for this someday because I doubt you'll ever forget to ask for the order again."

Mr. Lloyd Lopez was right about that, and so thanks Lloyd. I learned something that day from my distributor customer. Well that really only turned out to be the beginning.

Stan Maziuk Sr. (Maziuk & Co., Syracuse NY) taught me how to laugh and do business at the same time.

George Doetzl (Foley Belsaw, Kansas City MO) taught me how to eat BBQ and do business at the same time.

Dale Middleton (Bells Security, Bloomfield NJ) taught me how to hem my broken pants on the tradeshow floor with a stapler.

Bob Chanin (Blaydes Lock Co.,



# Antique Padlocks

The National Locksmith

Guide to:

*Antique Padlocks*



by Jack Roberts, CML

Finally there is a book to give you all the information you need about old interesting locks.

[CLICK HERE TO LEARN MORE](#)

#PAD - 1

Washington DC) taught me to eat hot, hot sauce and do business at the same time.

Ms. Lucille Mondy (McManus Locksmith Supply, Charlotte NC) taught this Yankee how to act like a southern gentleman and do business at the same time.

And Harris Goldstein (Mayflower Sales, Brooklyn NY) taught me to listen to my instincts when I thought it was time to leave repping and change careers. I'm glad I listened because the career change was to come to The National Locksmith.

The world is changing around you and rapidly at that. There was a time when many people questioned whether or not there would be a place in all this for the wholesaler. Not that long ago, Medeco changed from wholesale distribution to direct sales. For a while, a lot of people held their breath to see who would follow. So far, though, there has been no stampede to eliminate the middleman.

**T**he fact is that the distributor still fills a role, which is critical to the locksmith. And while this relationship might sometimes get rocky, the foundation still seems strong to me. The locksmith still has the advantage of drawing on a multi-million dollar inventory, without tying up his or her own cash, and can usually get 24-hour shipping.

What changes will the future bring us? That remains to be seen. The Internet could have a lasting impact in ways not even devised yet. At least one Internet wholesaler is making a run at selling hardware direct to the public with prices that are competitive.

On the other hand, at least one other distributor has invested a fortune in creating a website which allows you to use the internet to sell merchandise without having to spend much money of your own.

Personally, I believe that as long as we have security needs, the public will call upon the locksmith. And as long as the locksmith exists, so too will the distributor. Wholesalers change as they need to. So you can be sure that the next 20 years will bring many changes.

I only hope that e-mail doesn't replace all personal contact. BBQ sauce is murder on the keyboard.



# Introduction to Master Keying

## Cylinder & Key Design Limitations

### Part 3

#### TERMS:

**Bottom Pin** - The pin or tumbler that rests on the flat of the cut on the key.

**Driver** - The upper most pin in a chamber, usually flat on both sides.

**Master Pin** - The pin or tumbler used to create multiple shearlines. These pins are usually flat on both sides and rest between the bottom pin and driver Master Wafer - Another name for master pin.

**Negative Locking** - The locking caused by tumblers when the driver falls down into the shearline causing the non operation of that lock.

**Positive Locking** - The locking caused by tumblers when the bottom pins are pushed up into the shearline causing the non operation of that lock.

**Shearline** - The location on a plug where all tumblers must align in order for a plug to turn.

**Stack Height** - The height of all pins in a chamber.

#### CYLINDER & KEY OPERATIONS

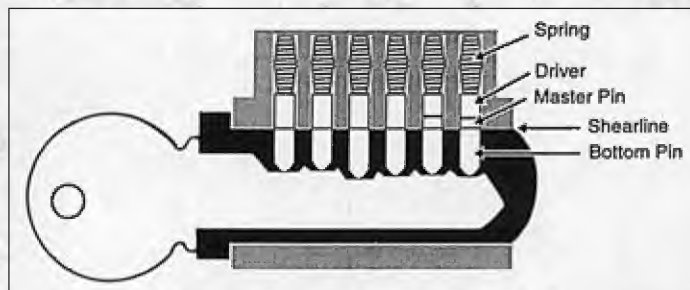
Each of the chambers in our lock holds sets of pins. Each set consists of a *Bottom Pin* and a *Driver*, with a spring on top to provide pressure on them. There may also be additional pins called *Master Pins* or *Master Wafers* between the bottom pin and the driver. (See illustration 1.)

As the key enters the keyway, the pins in the lock ride up and down the cuts of the key. When fully seated, a

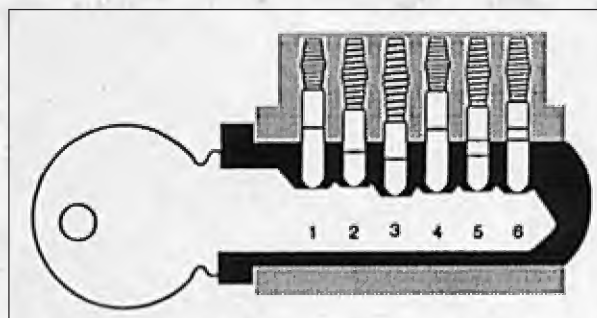
properly cut key raises the bottom pins so that the top of them is lined up with the thin gap between the plug and the shell. This thin gap is called the *Shearline*. When all the bottom pins line up at this line, the plug is free to rotate or spin. If the incorrect key is inserted into the lock, bottom pins that are too short fall below the shearline and the drivers block the shearline. This is referred to as Negative Locking.

When the bottom pins are longer than the root cuts and rise above and block the shearline this is referred to as *Positive Locking*. In either case, if the bottom pins do not line up at the shearline, the plug cannot turn and the lock does not work. (See illustration 2.)

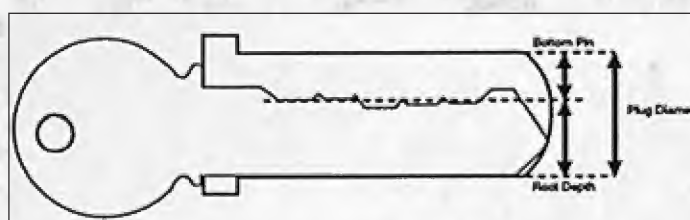
As seen in the illustration, the correct size bottom pin is determined



1. The chambers hold the bottom pins, driver, master pins, and spring.



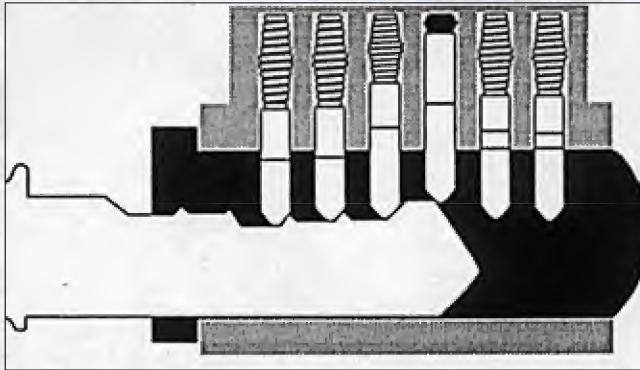
2. Positive and negative locking stop an incorrect key from operating a lock. Positive locking (spaces 1 and 4, above) is where the bottom pin is pushed up into the shearline. Negative locking (spaces 2 and 3, above) is where the driver drops down into the keyway.



3. The bottom pin dimension is found by subtracting the root depth of the cut from the diameter of the plug.



**4. The stack height is equal to the total height of all the pins in a chamber. When a key is inserted into a lock, it pushes the tumblers up, compressing the spring. If the stack height is too tall, the tumblers and compressed spring bottom out against the top of the chamber and the key cannot pass.**



by the diameter of the plug and the root depth of the cut. Subtracting the root depth from the plug diameter gives you the bottom pin size. (See illustration 3.)

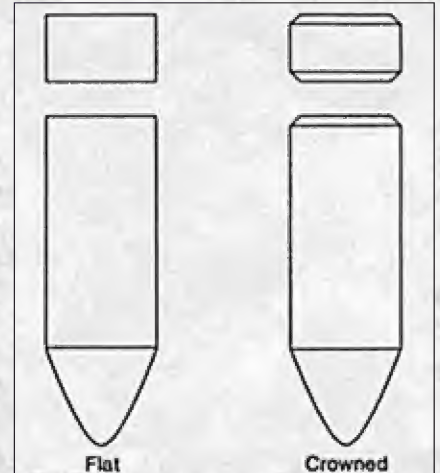
The proper sized driver is not nearly so critical, but must rise above the shearline when a key is not in the keyway. Should the Stack Height, the height of the driver and bottom pin together, be too high, a key with a shallow cut may not be able to clear that stack because it has been pushed to the limits of the top of the chamber. (See illustration 4.)

Pins are generally either flat or crowned. (See illustration 5.) Flat pins are just as they are named, and do not take into account the radius of the plug

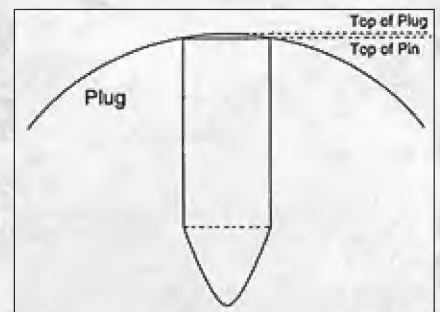
and shell. Crowned pins add a camber to the edge of the pin to accommodate the radius. Because the edges of the chambers in the plug fall just slightly below the actual plug diameter, a proper sized flat pin does not sit quite flush with the top of the plug and measures slightly shorter than a crowned pin. (See illustration 6.)

If the flat pin does rise flush with the plug, the corners of the pin bind against the shell wall. (See illustration 7.) The crowned pin, on the other hand follows more closely the plug's radius. (See illustration 8.) If at all possible, use original manufacture pins.

Like the root depth, the pin length is also given a corresponding number.



**5. The difference between a flat and crowned pin.**



**6. The proper sized flat pin sits just below the top of the plug when sitting at the shearline.**



## TNL on CD

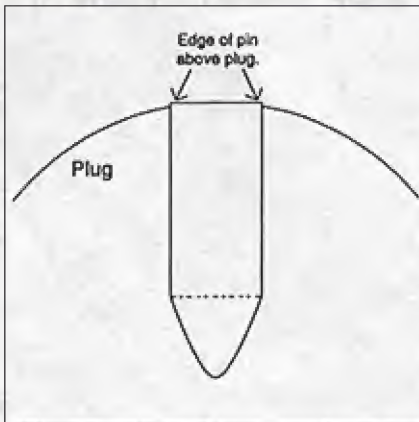
Our Compact Disc set features 11 years of the locksmith's favorite magazine. Thousands upon thousands of pages of indexed and searchable text!

**CLICK HERE TO LEARN MORE**

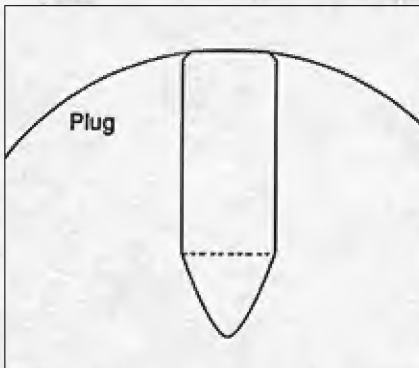


#TNL - CD1

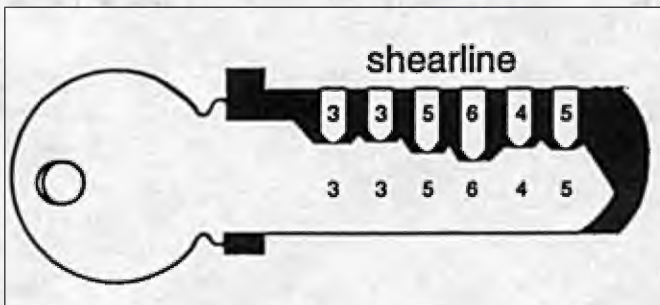




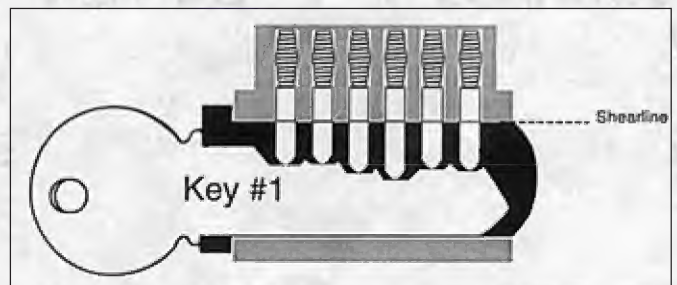
**7. If a flat pin is too long, or rises equal with the top of the plug, the edges stick out slightly from the radius of the plug. If a pin like this is used, the edges of the pin bind against the walls of the shell.**



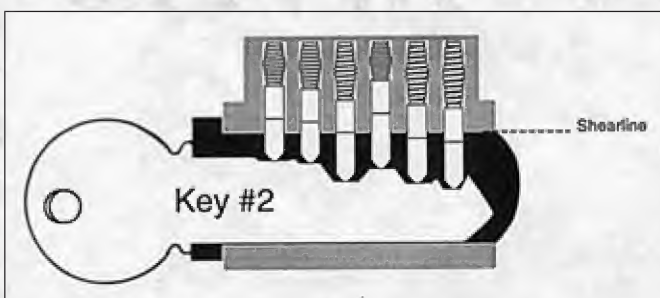
**8. The crowned pin follows more closely the radius of the plug.**



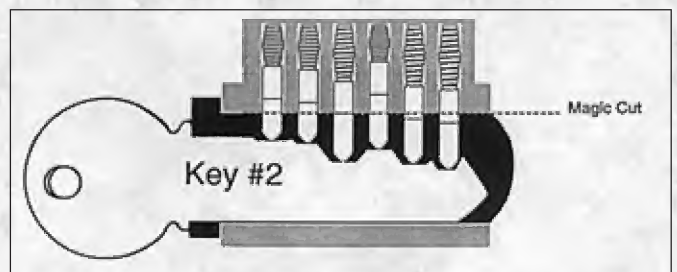
**9. Like the key bitting, the pin dimensions are given numbers that match the corresponding root depth. If a key has a number 3 cut, a number 3 bottom pin is needed to reach the shearline.**



**10. With the correct key inserted, all of the pins line up at the shearline, allowing the lock to operate.**



**11. With the wrong key inserted, the tumblers are in positive and negative locking positions, preventing the lock from operating.**



**12. If we had magical powers, we could cut the tumblers and create a shearline that allows the second key to operate the lock also.**

A key with a number 2 cut uses a number 2 bottom pin in that position. A key with a number 3 cut uses a number 3 bottom pin in that position. (See illustration 9.) These numbers correspond to the standardized depths used by that manufacturer.

An assortment of pins having only the proper sizes of a particular manufacturer is called an original pin kit. Universal pinning kits or standard pin kits with pin sizes to fit many manufacturers' locks are also available. These kits generally come with tumblers that have either .005" or .003" difference between each tumbler.

To this point we have only discussed a lock that uses one key. What if we want two or more different keys to fit our lock? This is what master keying is all about!

In the following illustration two different keys are inserted into a cylinder. The first key is the correct key and all pins line up at the shearline. (See illustration 10.)

The second key, however, is different. The bottom pins of the cuts one, two and four are raised past the shearline, while the bottom pins in cuts five and six are not raised high enough to reach the shearline. (See illustration 11.) If we had magical powers, we could cut each pin at the shearline. (See illustration 12.)

What happens? The new key now operates the cylinder because we magic-

ally "cut" the pins at the shearline, cutting the bottom pins where they were too long, and cutting the top pins (or drivers) where they were too short. (See illustration 13.) Now let's put the original key back into the cylinder and see what happens. (See illustration 14.)

Do you see what happened? By using the opposite end of the tiny section that we created with our magical cut, this key lines up the tumblers at a shearline. In reality, what we have done is created two shearlines and the tiny sections are the master pins we use to create other shearlines. In master keying, however, we don't use magic to create master pins, we use mathematics.

Before we dive into the process of master pinning a cylinder, however, let's develop an understanding of the master keying process.

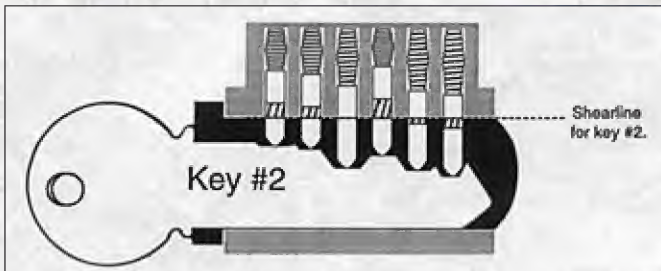
## **SUMMARY**

There are many parts to a lock, including the shell or housing, the plug, bottom pins, master pins, drivers and springs.

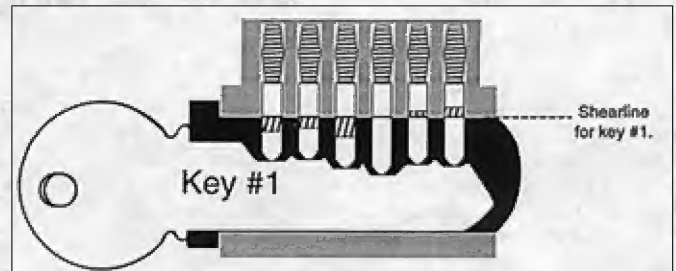
When a working key is inserted into a lock the tumblers line up at the shearline, allowing the lock to operate. Should an incorrect key be inserted, the tumblers align in positive and negative locking positions and do not allow the lock to operate.

There are many factors that establish whether a key can operate a





**13.** With the new shearline formed by our magic cut, the second key operates the lock. The shaded areas of each pin show how much of each pin was cut.



**14.** Inserting the first key, we find that the old shearline is still present, allowing that key to continue to operate the lock.

lock or not. The first barrier is the keyway, which is formed by wards in the plug of the lock and specially designed by the manufacturer of the lock. When a key's grooves match the keyway in the plug it can be inserted into the lock.

Not only does the grooving of the key have to be correct, the key must properly seat in the keyway. The seating of the key is determined by the land of the key and plug. If a key with similar grooving is inserted into a lock, but is not seating properly, the lock will not operate properly.

To place the tumblers at the shear line, the cuts on the key must have the correct spacing and depth. The spacing and depths of these cuts

are represented by the numbers in a key's biting. Each number in a key's biting corresponds to the spacing and depth dimensions for each cut on the key and match the manufacturer's specifications for that key and lock.

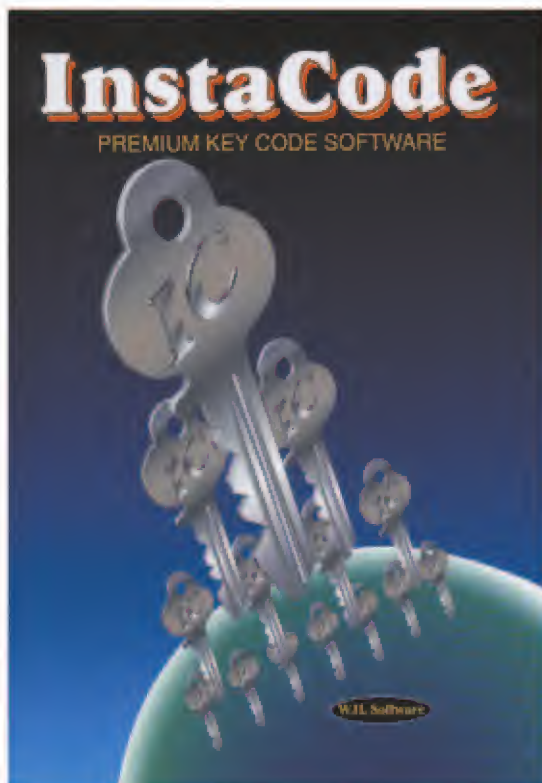
All cuts on a key, however, must be within the MACS for that manufacturer. If the MACS is violated, the flat of the shallowest adjacent cut is cut away, and the tumbler for that space does not rest on the key properly.

Like the cuts on a key, the tumblers or pins in the lock are also given numbers the dimension specifications. When pinning a lock, the bottom pin numbers relate directly to the biting numbers of the key.

Two or more keys can be made to operate a lock by creating multiple shearlines. These shearlines are created by adding a master pin or master tumbler between the bottom pin and driver.

Next time we will cover selecting a good key.

Material presented is excerpted from the Basic Master Keying Course, a course on the principles and terminology of master keying published by *The National Locksmith*. See the order form on page 52 or order it through the online store at [www.TheNationalLocksmith.com](http://www.TheNationalLocksmith.com) (\$149.95). **TNL**



#IC - 2001

## InstaCode

Your total code and code machine management program.



**CLICK HERE TO LEARN MORE**



# WiseLock

by Richard Allen Dickey



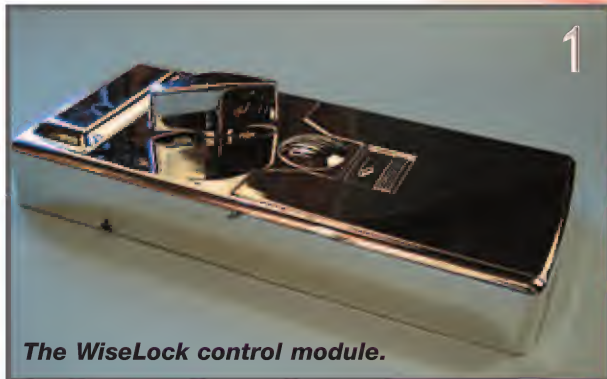
**M**orning Industry Inc. has introduced a remote control deadbolt called the WiseLock, which uses an inferred activating device much like the one you use to set the alarm on a car. Their new deadbolt is designed to replace any standard deadbolt without modifications to the door.

When I first saw the product mounted on a display, I wondered how a large control module could be attached to the inside of the door without modifications. (See *photograph 1.*) Well, the answer was quite simple. The addition of a modified retaining plate provided a secure mounting surface while leaving the door in its original condition.

I have always been the kind of person that just has to rip things apart to look inside, so read on and we will look at what makes this lock tick.

*Photograph 2,* shows the complete WiseLock KF series deadbolt disassembled so you can see all of the components of the lock. The first piece of interest is the cylinder housing. The cylinder housing is much like the one you would expect to see in a Schlage( deadbolt with the exception of the four wires exiting the rear of the housing. (See *photograph 3.*) These four wires are attached to two infrared sensors located in the front of the housing. (See *photograph 4.*)

The infrared transmitter along with a pair of keys can be seen in *photograph 5.*



**The WiseLock control module.**

The cylinder housing will accept several different manufacturers cylinders. The cylinder in *photograph 6,* is the one supplied with the lock. It is a 6-pin cylinder with a SC1 keyway and is secured in the conventional fashion, with a screw and a small retaining flange. (See *photograph 7.*)

The two sensors in the front of the cylinder housing transfer the infrared light information to the main module. (See *photograph 8.*) The main module does all of the work, but lets not get ahead of ourselves.

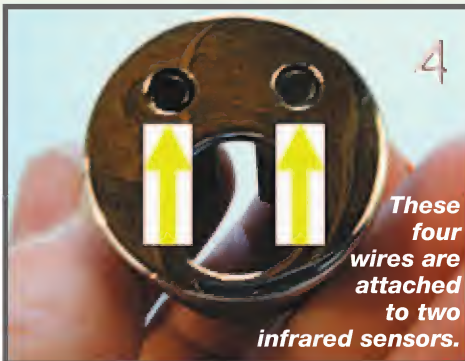


**The complete WiseLock KF series deadbolt disassembled.**





**The lock is much like a Schlage deadbolt with the exception of the four wires exiting housing.**



**These four wires are attached to two infrared sensors.**



**The cylinder is secured with a screw and a small retaining flange.**

Photograph 9, shows the inner shroud just to the right of the cylinder housing. The shroud has a small slot that will allow the connector from the cylinder housing to pass through. (See photograph 10.)

The main module as viewed from the backside, reveals the connector that mates with the connector from the cylinder housing. (See photograph 11.) In addition to the electrical connector, there is also a thumb-turn connection. This is the point where I had to rip things apart.

There are 7 screws that hold the back cover to the main module. When the cover is removed, you can see all of the goodies inside. Photograph 12, shows the main drive motor with the associated gears that activate the deadbolt. Depending on which way the motor turns, the deadbolt will either lock or unlock. I could go on for hours about all of the gears and electronics, but I think I will just put the cover back on and keep things simple. After all, not everyone is as interested about the insides of electronic locks as I am.



**The infrared transmitter along with a pair of keys.**



**The cylinder housing will accept several different manufacturers cylinders.**



**The two sensors transfer the infrared light information to the main module.**

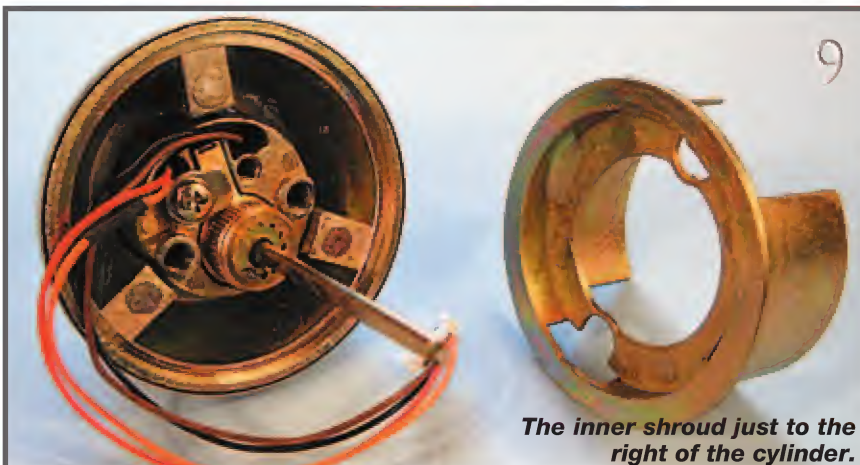
Moving on to other things, the bolt is your standard adjustable 1" throw model that requires a 1" edge bore. (See photograph 13.) When installing the bolt, there is an up side and a down side. Just look at the arrow and you can't go wrong.

With the bolt installed, the cylinder housing and shroud assembly can be installed. (See photograph 14.) The only thing to remember at this point is to rotate the tailpiece to the proper position before sliding it through the bolt. It should be in a vertical position. That will put it half way between the full clockwise and the full counterclockwise position. If the tailpiece is rotated fully in the wrong direction, the bolt can not be thrown from the inside or with the infrared controller.

The next step will remind you of a rim cylinder installation. Instead of an inside turn piece used to hold the outside cylinder housing in place, there is a mounting plate. (See photograph 15.) The mounting plate serves two purposes. First of

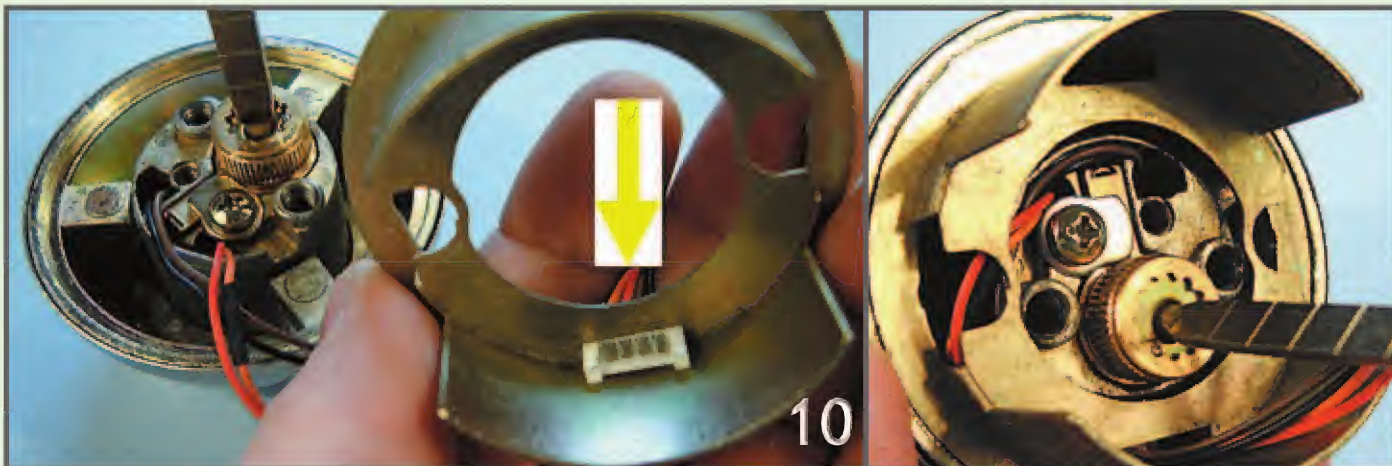
all, it holds the outside assembly in place. Its second purpose is to provide a way to attach the main module to the door without drilling any new holes. Don't forget to pass the wires from the cylinder housing through the slot provided in the mounting plate.

To continue the process of installation, the connector from the main module and the connector from the cylinder housing should be joined. (See photograph 16.) Care should be taken to ensure the connectors and cable do not interfere with the rotation of the tailpiece when the main module is attached to the mounting plate.

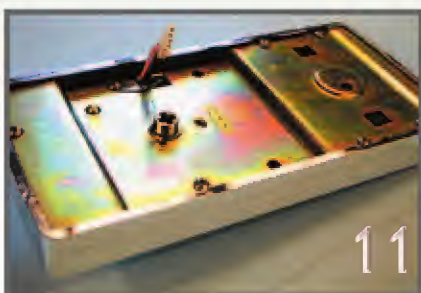


**The inner shroud just to the right of the cylinder.**





The shroud has a small slot for the wire connector to pass through.



The main module connector that mates with the cylinder housing connector.

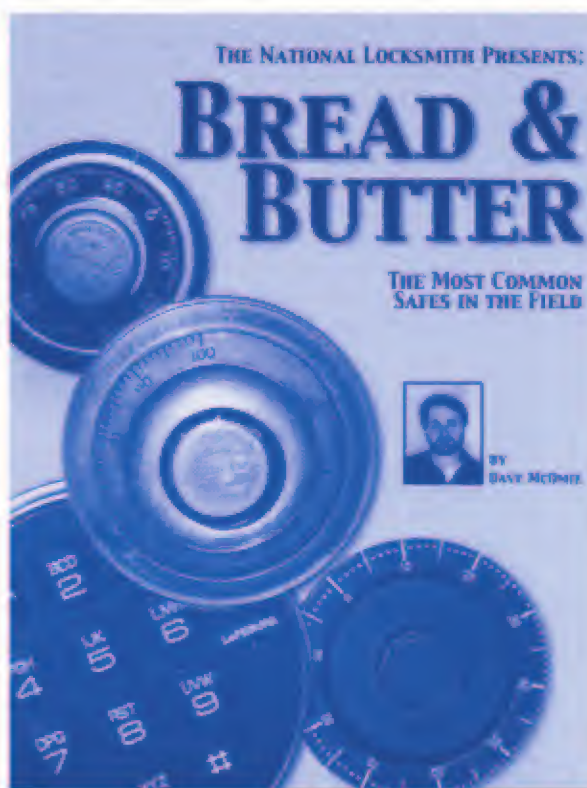


When the cover is removed, you can see all of the goodies inside.



The bolt is your standard adjustable 1" throw.

## Bread & Butter



Now here is one amazing value!

[CLICK HERE TO LEARN MORE](#)



#BB - 01

January 2000 • 55

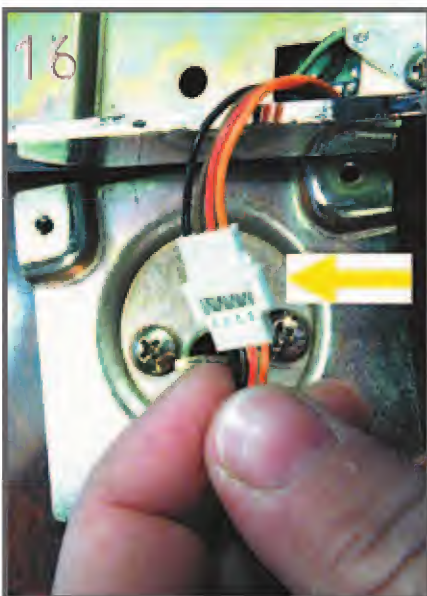




**14**  
With the bolt installed, the cylinder housing and shroud assembly can be installed.



**15**  
Instead of an inside turn piece used to hold the outside cylinder housing there is a mounting plate.



**16**  
The connector from the main module and the cylinder housing connector are joined.

(See photograph 17.) If you don't pay attention during this part of the installation, you could easily damage the wiring or connectors.

Two screws are used to secure the main module to the mounting plate. Looking at photograph 18, you can see the two screw holes on either side of the main module just below the battery holder.

It is time to add batteries. From the photo, you can see that the deadbolt uses four "AA" batteries for a power source. A set of good batteries should last for about a year of normal use. If you like watching the bolt go in and out, the batteries will probably die a little premature. But it is cheap entertainment!



**17**  
Ensure that the connectors and cable do not interfere with the rotation of the tailpiece.

After attaching the main module and adding batteries, there is nothing left to do but slide the battery cover into place. (See photograph 19.)

Photograph 20, gives you an idea of what the finished product installed will look like.

Programming the KF series deadbolt proves to be as easy as putting it together. To start with, the system will allow up to 30 different remote controls. Each remote control has a different code. An example of this would be, remote number 1 may have code #0001 installed. Remote number 2 may have code #0002 installed and so on until you get your 30 remotes.



**18**  
There are two screw holes on either side of the main module just below the battery holder.



**19**  
After attaching the main module and adding batteries, slide the battery cover into place.





An idea of what the finished product installed will look like.



There are two small buttons that are used for programming.

You can expand the number of users beyond 30 by getting copies of any of the remote controls. You can have as many remotes as you want with the same code number built in. This will allow an indefinite number of users.

When you want to add or remove a user, there are two small buttons that are used for programming. (See photograph 21.) Pressing the "S" button will allow you to add another remote. To add a remote, just follow these two steps. Press the "S" button and you will hear a beep. After you hear the beep, hold the remote in front of the lock so the infrared sensors can detect the signal from the remote and press the button on the remote. You will hear two beeps if you have been successful. Continue this procedure until all remotes are programmed that you want to use.

To remove a user, press the "C" button and you should hear a beep. The only bad thing about this button is that it clears all users and you will need to re-enter all users as if you were just starting for the first time.

For an electronic lock, this is probably the simplest to install and program that I have seen. There are no holes to drill and only two buttons to press. It doesn't get any easier than that.

For more information on this product, contact Morning Industry at 909-869-0552. You can also write to them at P.O. Box 2288 Walnut, California 91788. If you like the Internet, they have a web site at [www.morningindustry.com](http://www.morningindustry.com) Circle RR#280.

TNL

## The National Locksmith Magazine Subscription



This is THE source for automotive technology, safe opening techniques, electronic security and much, much more.

CLICK HERE TO LEARN MORE

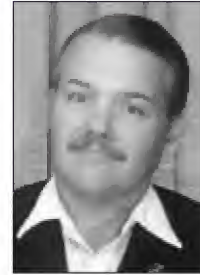


#SUB - 1,2,3,4,5,6



# BEGINNER'S CORNER

## Focusing on Ford Locks



by  
**Jim  
Langston**

**P**in tumbler locks with five sets of tumblers were used for all Ford ignition, door, and trunk locks up to the 1984 model year. Glove compartment locks could either be pin tumbler or disc tumbler, however, only four disc tumbler glove compartment locks have been used since 1981. In late 1984, disc tumbler locks were used on most Ford vehicles.

Prior to 1982 the ignition and doors are keyed alike and operated by the primary key. The trunk and glove compartment are keyed alike and are operated by the secondary key.

Before 1977 the code for the primary key can be found on one of the door locks, usually the passenger side. Before 1980 the secondary key code can be found on the glove compartment lock latch housing. After 1980, codes were no longer stamped on the glove compartment locks.

After 1980 the primary key only fits the ignition lock, and the secondary key operates all other locks. Many of those locks do not have the key code numbers stamped on them, but the tumblers have biting numbers stamped on them. This obviously requires disassembly of the lock.

### Fitting Keys

Before 1981 you can fit a primary key to a Ford by removing the door lock and measuring the bottom pins. The measurements for the bottom pins are as follows: 1 = 145, 2 = 165, 3 = 185, 4 = 205, 5 = 225.

To fit a secondary key for a Ford before 1981, cut the key by code found on the glove compartment lock. To fit a secondary key for 1981 to 1984 models either impression or remove the disc tumbler lock and read the biting numbers.

During the 1984 production year a sidebar disc tumbler ignition lock and disc tumbler door locks were used on the Mercury Cougar and the Ford T-Bird. This was referred to as the 10-cut locking system. In the 10-cut

system, the first six cuts (starting at the bow) are for the doors; the last six cuts (spaces 5 through 10) operate the ignition lock. Spaces 5 and 6 on the key are common cuts between the ignition and door locks.

In 1996 Ford introduced the 8-cut system in both a standard 8-cut with a sidebar and an 8-cut lock featuring the new Passive Anti Theft System (PATS).

After 1984, neither the ignition nor the door locks have key codes stamped on them. The easiest way to fit a key for those vehicles is to cut a key by code, if it is available. The codes are stamped on

key tags and given to the purchaser of the vehicle. If you do not have a code, you can impression a key from one of the doors. If you need a key for the ignition, you will have to use a progression method based on the common 5 & 6 cuts. A Ford 10-cut progression chart can be found in *The National Locksmiths AutoSmart* book. This method of making an ignition key may require a number of keys to progress. If this method is not suitable you will need something like a H.E. Mitchell EEZ-Reader, Determinator, R&D Ford Pick by Tech-Train, or try-out keys to accomplish the task.



**1. Turn lock to the "On" position and insert a probe.**



**2. With the retainer pushed in you can remove the ignition lock.**



**3. Align the plug with the housing so you can take it apart.**



To remove most Ford ignition locks, turn the lock to the "On" position and insert a probe in a hole underneath the column and push in on the lock retainer. (See photograph 1.) Once the retainer has been pushed in you will be able to remove the ignition lock very easily. (See photograph 2.)

**4. Turn the plug so the tab aligns with the slot in the housing.**



In photograph 3, the probe is pointing to where you will have to align the plug with the housing so you can take it apart. With a key, turn the plug so the tab aligns with the slot in the housing and pull the plug. (See photograph 4.)

When you take the lock apart (see photograph

5) be sure you do not let anything jump out. There are two spring-loaded retainers in the housing that can easily be lost. (See photograph 6.)

In photograph 7, you can see the disc tumbler chamber. When loading the tumblers and springs, make sure the sidebar is working as you place each disc tumbler in its position. (See photograph 8.) Once you have all the disk tumblers in place, replace the cap on the plug and reassemble.

With the exception of the Ford Probe, all later model Fords will remove in this manner. The Ford Probe locks are held in by a roll pin. Mazda 10-cut codes are also used on these vehicles.

#### **Using Try-Out Keys**

A common method of key origination for Ford locks is with try-out keys. (See photograph 9.) For the Ford 10-cut system there are six sets of try-out keys for the door, and six sets of try-out keys for the ignition. These keys are cut on both sides in half cuts and each side has a different bitting.

To use try-out keys, first try each key in a door lock. Once you get the

**5. Be sure you do not let anything jump out when disassembling the lock.**



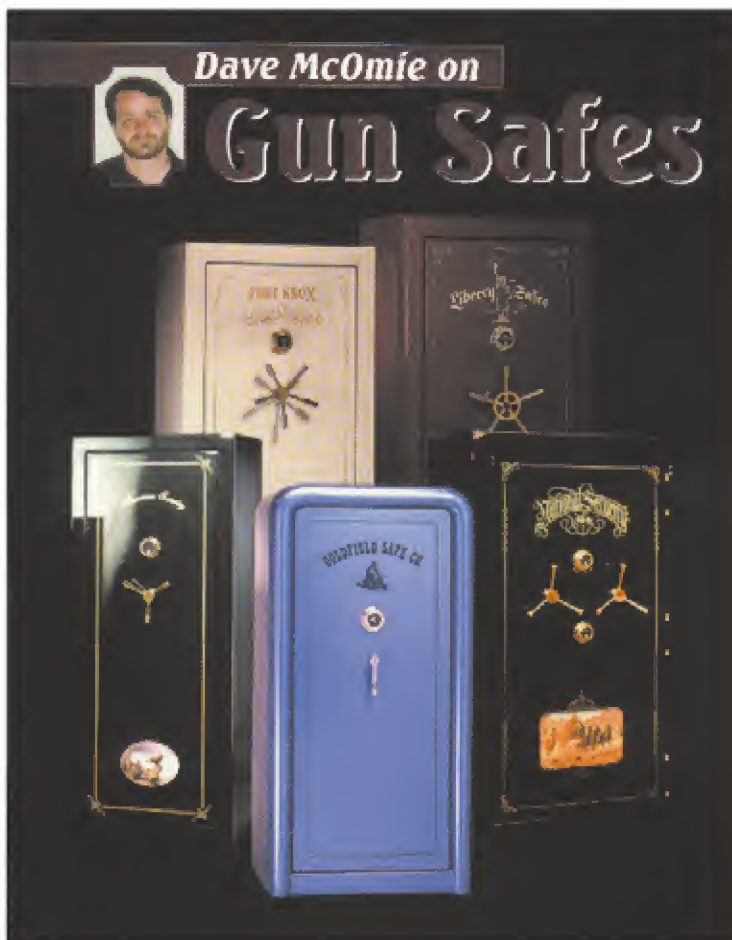
**6. There are two spring-loaded retainers in the housing that can easily be lost.**



**7. The tumbler chamber.**



# Gun Safes



Need a drill point or relocker drill point on a gun safe?

[CLICK HERE TO LEARN MORE](#)

#GS - 1



**8. Make sure the sidebar is working as you place each tumbler in the lock.**



**9. A common method of key origination for a Ford 10-cut system is with try-out keys.**

door lock to turn note the number on the key. Go to the chart that comes with the keys and it will show you what group of keys you must try on the ignition. Once you get the ignition lock to turn look on your chart and it will show you what the cuts are on the key. Write these cuts down. Then go to the door key and write the bitting numbers down. For example, the door key will be decoded as these cuts 2-2-4-2-1-2-4-4-2-1. The first six cuts are the bittings for the door lock; the last six cuts are the bittings for the ignition. When you are finished you will have all 10-cuts. **IRL**



# TECHNITIPS

## YEAR-END PRIZES



### **Grand Prize**

*Silca Bravo Duplicator*



### **1st Prize**

*HPC's 1200PCH  
Punch Machine*



### **2nd Prize**

*Mas Hamilton's Auditcon  
2100 & Certification Class*



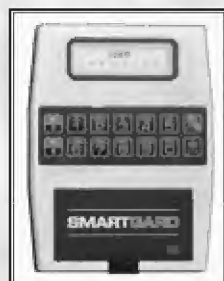
### **3rd Prize**

*Curtis 2100 Duplicator*



### **4th Prize**

*SDC Magnetic Lock, Keypad  
and Exit Switch*



### **5th Prize**

*LaGard "Smart  
Guard"®*



### **6th Prize**

*\$500 in All Lock Products*



### **7th Prize**

*\$500 in ASP  
Auto Locks*



### **8th Prize**

*\$500 in Strattec Auto  
Products*



### **9th Prize**

*Arrow Exit Device and  
Mounting Kit*



### **10th Prize**

*Dewalt Cordless Drill*



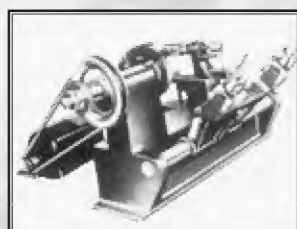
### **11th Prize**

*Detex ECL-8010W  
Wetlock®*



### **12th Prize**

*Securitron DK-26 Touchpad  
and CPU Board for  
Magnetic Lock*



### **13th Prize**

*Foley-Belsaw 200  
Key Machine*



### **14th Prize**

*Accu-Mark™ Key  
Stamping Machine*



### **15th Prize**

*S&G 6120  
Electronic Safe Lock*



## These Prizes Awarded Each Month!

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• BWD Automotive Ford or GM KwiKit</li> <li>• Wedgeco™ Key Extractor Kit</li> <li>• Strattec Racing Jacket</li> <li>• HPC Air Wedge™</li> <li>• Sargent And Greenleaf<br/>4400 Series Safe Deposit Box Lock</li> <li>• A-1 Security Products</li> <li>• ILCO Key Blanks (100 Blanks)</li> <li>• Keedex "SPIN OUT" Screwdriver</li> </ul> | <ul style="list-style-type: none"> <li>• Tech Train Training Video</li> <li>• Sieveking Products<br/>Gm E-Z Wheel Puller</li> <li>• Major Manufacturing Products</li> <li>• Slide Lock's "Z" Tool Opening Set</li> <li>• The Sieveking Auto Key Guide</li> <li>• Jet Key Blanks (100 Blanks)</li> <li>• High Tech Tools</li> <li>• LaGard Combo Guard</li> </ul> |
|---|--|

### Send in your tips, and win!

#### How To Enter

Send a tip on how to do any aspect of locksmithing. Certainly, you have a favorite way of doing something that you would like to share with other locksmiths. Write your tip down and send it to:

Jake Jakubowski, Technitips Editor,  
**The National Locksmith**  
 1533 Burgundy Parkway, Streamwood,  
 IL 60107-1861

Or send your tips via  
 E-mail to: [Natlock@aol.com](mailto:Natlock@aol.com)

#### Rules & Regulations

Each tip submitted must include your full name, street address (no P.O. Box numbers), city, state, zip code, phone number, fax number or e-mail address.

#### Every Tip Published Wins

If your tip is published you will win one of the monthly prizes listed. At the end of the year, we choose winners from all the monthly tips published, that will be awarded one of the fabulous year end prizes. All you have to do to win is enter.

Prizes are arranged according to suggested retail price value.



**16th Prize**  
 High Tech Tools  
 2500 Pro Set



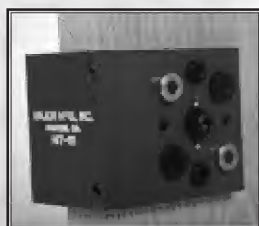
**17th Prize**  
 Slide Lock's  
 Master "Z" Tool Set



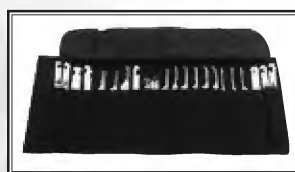
**18th Prize**  
 ESP Products Sampler



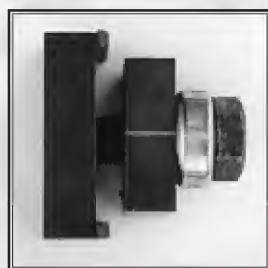
**19th Prize**  
 Baxter JV-1 and  
 JV-5 Code Books



**20th Prize**  
 Major Manufacturing's  
 HIT-111 Drill Guide



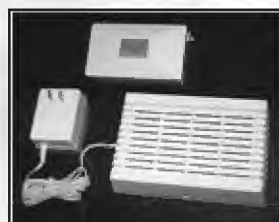
**21st Prize**  
 Falle Pick Set From Mark  
 Bates Associates



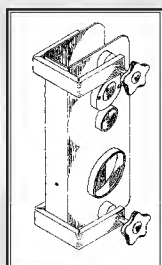
**22nd Prize**  
 Sieveking Products  
 Squeeze Play



**23rd Prize**  
 ABUS Padlock's Marine  
 Padlock Display



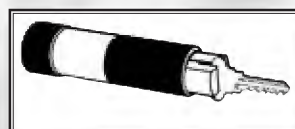
**24th Prize**  
 Rodan's AV 100 Heavy  
 Duty Door Annunciator



**25th Prize**  
 A-1 J-50  
 Installation Jig



**26th Prize**  
 M.A.G. Engineering  
 Sampler



**27th Prize**  
 Framon Impressioning  
 Handle



### The 15 Minute Safe Opening Technique

#### 28th Prize

Book — 15 Minute  
 Safe Opening  
 Technique by Jake  
 Jakubowski





**BWD KWIKIT WINNER:**  
**Money Saving**  
**Pinning Kits**

While recently outfitting a new employee's van, I thought of a way to save some money. I wanted to put the most common (Ford, Chrysler and GM) pinning kits on his truck, but I was reluctant to spend the six hundred or so, dollars it would cost me to do that.

I went to my local Wal-Mart and bought a number of small fly-fishing and lure boxes. These little six compartment boxes were perfect for holding an assortment of wafers, pins, springs and retaining caps at a cost of about \$36.00!

How much I'll save in lost, spilled and missing kits in the future, I have no way of knowing.

*Paul Kevin Winkler*  
*South Carolina*



**WEDGECO™ KEY**  
**EXTRACTOR KIT WINNER:**  
**Yale Mortise Fix**

One of the buildings I maintain has old (circa 1966) Yale 6-pin mortise cylinders that have solder plugs in the drilled holes in the bottom of the cylinder.

Frequently, people have managed in pulling their key out of one of these cylinders while the cylinder was 180° from the normal key removal position. Forcing the key out of the cylinder in this position would cause the pins to exert enough force on the solder plugs to push them partway out of the bottom of their holes.

Prior to finding a better way to repair the damage, I would grab my drill and drill the plug out. I now use a hooked pick and press each pin, or pins, completely through the bottom of the cylinder and then use my spinner to return the plug to the correct position.

All I had to do then was repair the cylinder by plugging the holes with a good grade epoxy, re-pin the plug and put the cylinder back into service.

Yale later corrected this problem.

*Dennis Gillette*  
*Illinois*



**STRATTEC RACING**  
**JACKET WINNER:**  
**Key To Repeat Sales**

Most of us have experienced the Chrysler (1969-1984) ignition key that gets trapped by the key buzzer when the key is

## Jake's Jabber...

2000! Can you believe it! It seems to me that the last decade went by awfully fast. One day I woke up and it was 1990 and I had a brand new decade to do all those things that I had been putting off all during the Eighties. Yeah right!

Well, Happy New Year to all you guys and gals out there from Christie and me. I hope this year is a healthy, happy and prosperous one for each and every one of you.

At any rate, have a great year, send me in the tips you've been meaning to send and see if your name doesn't appear on next year's winners list!

2000! I can hardly believe it. See y'all next month.



*by Jake*  
**Jakubowski**

inadvertently inserted upside down and cannot be removed from the switch by the customer.

For a locksmith, getting the key out is not a big deal, just use a lock pick, push down on the buzzer activator, which releases the key, extract the key and you're on your way.

Before I leave the customer, I explain to them that the problem is common on these particular make and year model and offer - at no cost - to grind a flat on the "upside" of their key to keep the key from getting trapped in the future. I explain to the customer that they can even tell by feel, the proper way to insert the key on the darkest of nights.

The customer's problem has been solved and they will remember you every time they put their key in the ignition.

*George Steiner*  
*Nevada*



**HPC AIR WEDGE™**  
**WINNER:**  
**Customer Service**  
**Tip**

I do a lot of residential rekeying as a result of advertising directed to new homeowners. Occasionally, homeowners would call after the job was complete and ask for extra keys. Not having the key biting handy, I would have to go to the customer's home or business to cut the key.

To resolve the callback problem I used my computer to generate some randomized "Rekey Codes" for 5, 6, and 7 pin cylinders. I now use these whenever I do a rekey and keep a record of which customer a particular code was assigned to. That way, when a customer calls for duplicate or extra keys I can look up the code, cut the keys and mail them to the customer.

This saves me time, makes the customer happy and generates a fair amount of repeat business, as well as new referrals, for me.

*William "BeeGee" Byberg*  
*Tennessee*

**Editor's Note:** BG, great idea! I have maintained a key coded registry for a majority of my commercial customers for years. When the customer calls and requests a copy of a given key, I cut it, mail it and bill them for the key and postage. They love the service and although I might "lose" a service call fee, I more than make up for it in customer loyalty and referrals. I believe that anything you can do to create the perception in the customer's mind that you are "service oriented and dependable" business is going to be good for you.



**SARGENT &**  
**GREENLEAF 4400**  
**SERIES SAFE**  
**DEPOSIT BOX LOCK**  
**WINNER:**

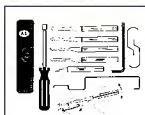
## Schlage Double Duty Faceplate

I had to install cam locks on some beverage carts. As I was finishing up, I realized that I was one double "D" backing plate short. Since the walls of the carts was thin plastic, it really needed the double "D" backing plates if they were going to offer any security at all.

Rummaging through my junk bucket looking for a substitute, I found that the outer faceplate for a Schlage deadbolt is just the right size to work as a double "D" backing plate for a cam lock. And, it got the job done in a pinch.

*Bill Weingard*  
*Arizona*





**A-1 SECURITY  
PRODUCTS WINNER:  
Taurus Trunk Key  
Retrieval**

While I was trying to pick the lock on a Taurus trunk, I dropped my pick. As I bent down to pick it up, I noticed that the trunk lock's retaining clip was visible on the underside of the trunk lid just above where the license plate mounts.

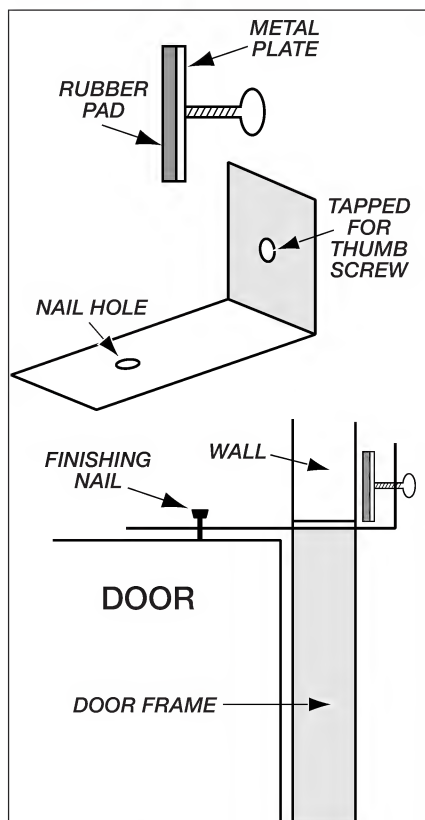
I drilled the Poprivit® that holds the clip in place, removed the clip, pulled the cylinder and used a screwdriver to open the trunk.

I then reassembled the lock and riveted the clip back in place. The whole job took about five minutes and the customer was pleased to be back on the road so quickly. *Dan T, Nave Pennsylvania*



**ILCO KEY BLANKS  
(100) WINNER:  
Key Blank Organizer**

Here's a tip for storing and transporting key blanks. Plano tackle boxes (model 3701) make an adjustable compartment stowaway that key blanks fit into perfectly. Each tray's have 34 compartments and each compartment holds up to 14 blanks. The trays measure only 9" X 14" X 1.5" deep, are watertight, have good dual snap downs and are transparent for easy viewing of the blanks.



**Illustration 1.**

You can use these trays with the hard or soft-sided Plano boxes and you can carry enough odds and ends in one easy to handle and readily portable package that will allow you to tackle most keying jobs.

*Jerry Cashmore  
Canada*



**KEEDEX "SPIN OUT"  
WINNER:  
Door Holding Tool**

Over the years, I've installed a lot of doors. Normally, I've only needed my foot jack to hold the door in place while I installed the hinges. However, a few times I could have used some

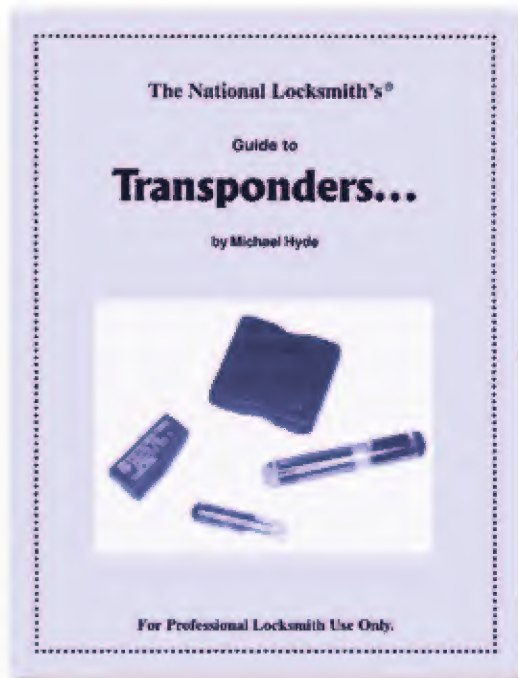
help but didn't have anyone around to hold the door in place for me. To overcome this problem, I came up with the tool you see in *illustration 1*.

The tool is made from a block of wood, a rubber pad, a strip of scrap metal and a threaded thumbscrew.

All I do is attach my door holder to the top of the door with a small finishing nail, and place the padded block against the header and adjust the thumb-screw until the door is in the position I want it to be in. I then attach the hinges to the frame and the job is done.

*Jay H. Dye  
California*

# TNL's Guide to Transponders



Over 350 pages in a handy binder to accept updates as needed.

**CLICK HERE TO LEARN MORE**



#TS - 2001





**TECH-TRAIN  
 TRAINING VIDEO  
 WINNER:**

**Screwdriver Tip, Tip:**

This is so simple I hesitate to send it in. Pocket screwdrivers using multiple bits - a Phillips on one end and standard, flat on the other - can occasionally give you a problem when you try to switch bits.

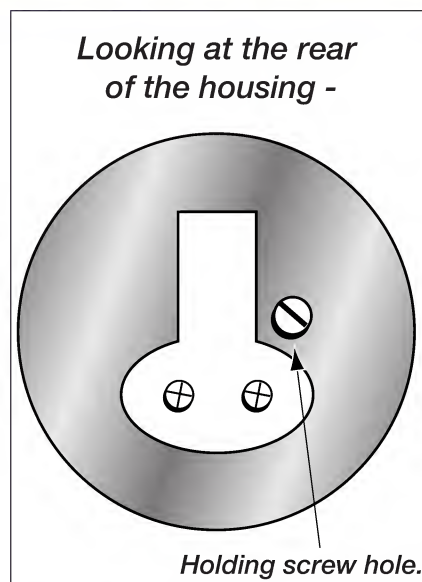
If you have one, you have undoubtedly had a problem pulling a bit out to reverse it. I have, and more than once, have had to walk back to the truck to get a pair of pliers to pull out a stubborn bit.

My solution is to put the screwdriver blade through the hole in the bow of a key on your key ring, bind the blade and pull! *Don Adlam  
 Canada*



**SIEVEKING  
 PRODUCTS GM E-Z  
 WHEEL PULLER  
 WINNER:  
 Retainer Screw Fix**

The retaining screw in the upper right quadrant of a Schlage deadbolt cylinder housing, will frequently strip and will not hold the cylinder securely. (See illustration 2.) This can



**Illustration 2.**

occur on Sargent, Arrow and others as well.

To repair this condition, you can drill and tap for a larger screw, or you can take a shim, roll it tightly between your fingers until it will fit in the stripped out retaining screw hole, trim off the excess length and screw the retainer in the hole. It will grip tightly and securely hold the cylinder in place.

*Bob Williams  
 California*

**Major** MAJOR  
 MANUFACTURING, INC. MANUFACTURING  
 PRODUCTS  
 WINNER:

**Undercover Impressioning Trick**

I read the tip about the East German secret police methods of impressioning keys for later key origination. Having a little time on my hands, I decided to see how well the tip about using the metal slide of a floppy disk would work.

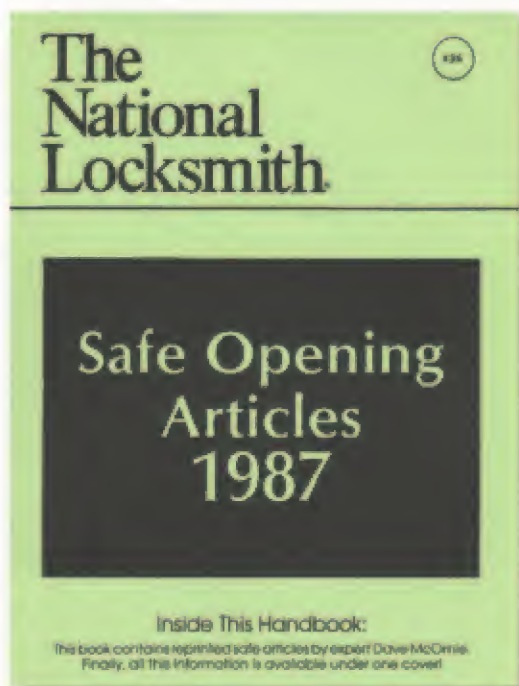
I took the metal tab off of a floppy disc and was able to make a clear enough impression of a key to later cut or file that impression on the proper blank.

I then decided to carry the idea one step further. I took the floppy round disk out of the case and found the soft plastic disk will make a better impression of a key than the metal slide will.

Jake, maybe I've got too much time on my hands! *Stephan Stanley  
 Maryland*

**Editor's Note:** Stephan: Thanks for your version. A friend who was a locksmith in Texas once had a customer bring in a

# Safe Opening Articles 1987



Now under one cover—all the information safe opening articles by expert safeman, Dave McOmie.

**CLICK HERE TO LEARN MORE**



#SA - 1



tortilla with a key impression on it for duplication! Of course, Lockmasters has the "Clam", and I've heard of using aluminum foil as well. I recently photocopied an oddball key for later identification. So, there are reasons to resort to alternative copying methods for keys. However, Stephan, if you, or any of your Mission Impressioning Force, are discovered surreptitiously impressioning keys for the Conowingo Dam, The National Locksmith will disavow any knowledge of your actions!



**SLIDE LOCK'S "Z" TOOL  
OPENING SET WINNER:  
Cold Weather  
Opening Tip**

I have a simple tip for those locksmiths that have to go out in the cold weather to open vehicles. In the winter the weather stripping can freeze solid to the window, making it difficult (if not impossible) to insert a wedge!

The best way to remove the ice and snow is to carry a putty knife. Not only can you scrape and chip away the ice, but it's great for inserting it between the rubber and the window to allow you to insert your wedge and tool.

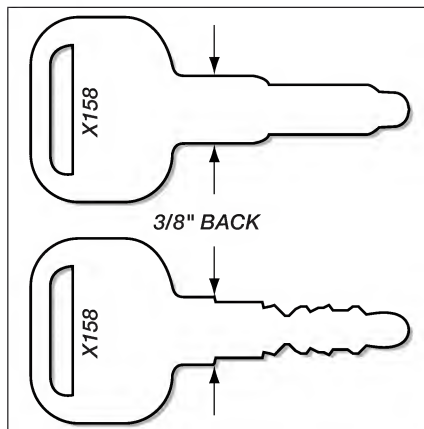
Even when the weather is warm, I carry one for those really tight windows.

*Mark Stratton  
Montana*



**THE SIEVEKING AUTO  
KEY GUIDE WINNER:  
Making an Isuzu  
Truck Key**

I was asked to copy a key for an Isuzu truck where the customer's key was on a Silca blank. Not having that particular blank, I checked my Ilco Key Blank Reference and the only key I could come up with for a 1999 Isuzu truck was the X154. However, the X154 would not enter the ignition switch.



**Illustration 3.**

A little experimentation led me to an X158, which would enter the keyway. After cutting the key I could start the vehicle but not operate the door locks! Close examination revealed that the customer's key was slightly different than the X158. So, I measured back 3/8" back from the original shoulder on the X158 and shaved a little off the blade, creating a new shoulder as shown in *illustration 3*. That key worked everything.

*Fred Spencer  
Pennsylvania*

Editor's Note: Fred, The main thing is that you found a way to solve your customer's

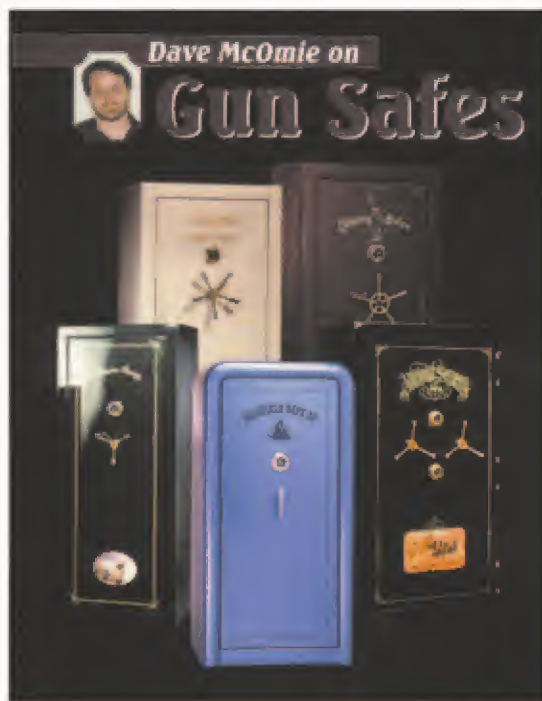
problem. The correct Silca number would have been ISU3 and Ilco's X158/B53 should have handled the job without modification according to the information that I have. However, you failed to mention the model truck you were duplicating the key for, so that might be the cause of the variation since that particular model may take a key number different from the most common.



**JET KEY BLANKS (100)  
WINNER:  
Topsy Turvy Picking  
Trick**

A young locksmith from down state stopped in my shop while he was on

# Gun Safes



Need a drill point or relocker drill point  
on a gun safe?

**CLICK HERE TO LEARN MORE**



#GS - 1



vacation. We got around to picking locks and he said he had a problem picking with a pick gun when the locks were installed upside down. It seems he had a hard time holding his pick gun upside down while he was trying to pick the lock.

I said, "why do you hold the pick gun upside down?" Just use the pick gun the same as you do when the lock is installed right side up. I've picked numerous cylinders that way over the last 30 years.

*Leroy Gramza  
Michigan*

#### HIGH TECH TOOLS WINNER:



#### **Kenworth Opening Tip**

The 1994 to 1999 Kenworth trucks use an Ilco K1994 key blank. However, a P1108 (B88) Saturn blank makes a good substitute. Consequently, Aero Lock's TD48 Saturn tryout key set makes opening Kenworth's a snap.

Since there are only 32 Saturn door keys in the set, you can open these trucks faster with the tryout keys than you can get your opening tools out of your van and climb up the side of the

cab to unlock the door.

I've also found that the '97-'99 Ford Escort and Mercury Tracer keys (H76 or X 244) can be substituted with a Mazda X201 (MZ19) or an X222 (MZ27). The code series for the Escort, Tracer and Mazda are the same: 10100-12283.

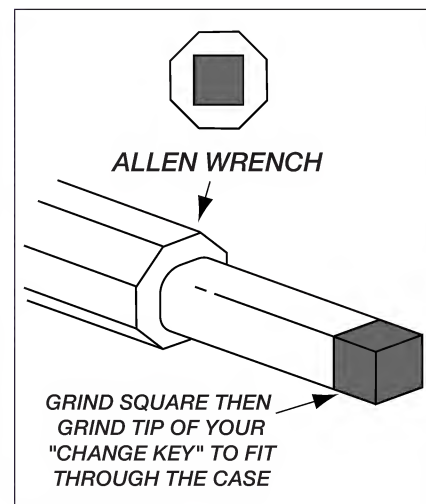
*Sonny White  
Tennessee*



#### **LAGARD COMBO GUARD WINNER: Allen Wrench Change Key**

I acquired an old Barnes fire safe with an Eagle lock. The lock had three wheels and a driver that required a change key to change the combination. Since I did not have a change key for this lock, I used a 1/4" Allen wrench and squared it off as you see in *illustration 4*.

After squaring the wrench off to the proper length to fit the wheel



**Illustration 4.**

pack, I ground the tip of the change key to fit through the back cover of the lock case as shown. The key worked so well, that I have since modified Allen wrenches to function as change keys in other older locks that I have come across that I did not have a change key available for.

I've found it's not too difficult to manufacture a special change key for an out-of-date lock, I just have to make sure that the dimensions are accurate and the key fits the entry hole, the wheel pack and the "seat".

*Mark Cunningham, CPL  
Ohio*

# Lock Repair Manual

## Lock Repair Manual

*This handy reference book features information on repair and installation of various makes and styles of locks.*



Published by:

**The  
National  
Locksmith**

Here, under one cover you have a tremendous amount of lock servicing information. Next time you run into a problem chances are you'll find the answer in the Lock Repair Manual.

**CLICK HERE TO LEARN MORE**



#LRM - 1



# 1996 HONDA VFR 750

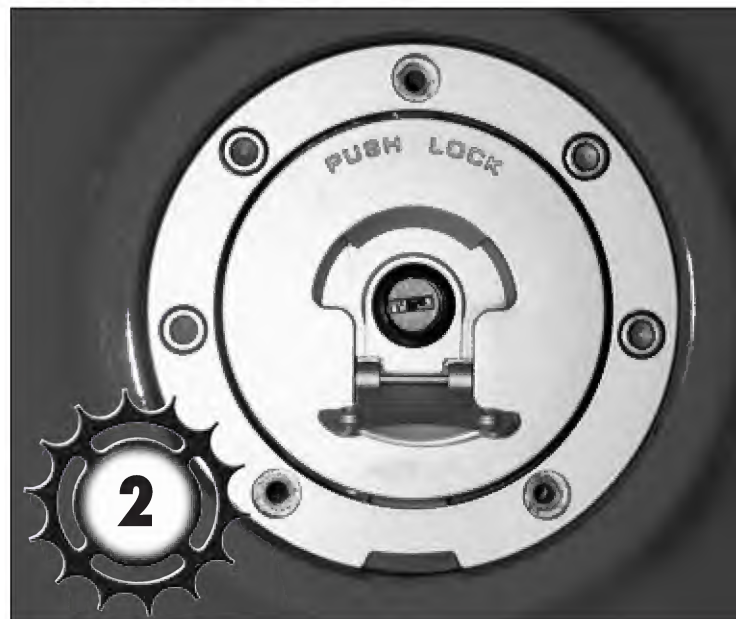


by  
John  
Blankenship



The Honda VFR750 was picked as the best 750cc sport bike six years in a row by Cycle World magazine. It is a very popular motorcycle and there are a lot of them on the road. Originating a key for this motorcycle is usually fast and easy. Begin by locating the gas cap. It is the large, round, silver area on top of the gas tank between the seat and handlebars.

## LOCATING A CODE:



Flip up the dust cover in the center of the gas cap to expose the lock and pick it 90-degrees clockwise. This lock usually picks easily with a rake. You are picking against spring pressure so have a small screwdriver ready to finish turning the plug.



Raise the hinged gas cap and look on its bottom side. There will be six numbers and letters stamped into the metal. They are very small and you may need to use a magnifier to read them. The last three are the code. In this case the code is B33. Cut the key by code on an X84 blank and the job is done.



If you are unable to obtain the code on the gas cap lock for whatever reason; no problem. Locate the seat/helmet lock on the left side of the motorcycle.

On the back side of the seat/helmet lock there are two shear head bolts that hold a bracket over the backing plate of the lock. Remove the forward bolt using a spring-loaded center punch or a hammer and punch will work. Start the punch straight in to get a bite and then angle it so as to turn the bolt counter-clockwise like in the photo.

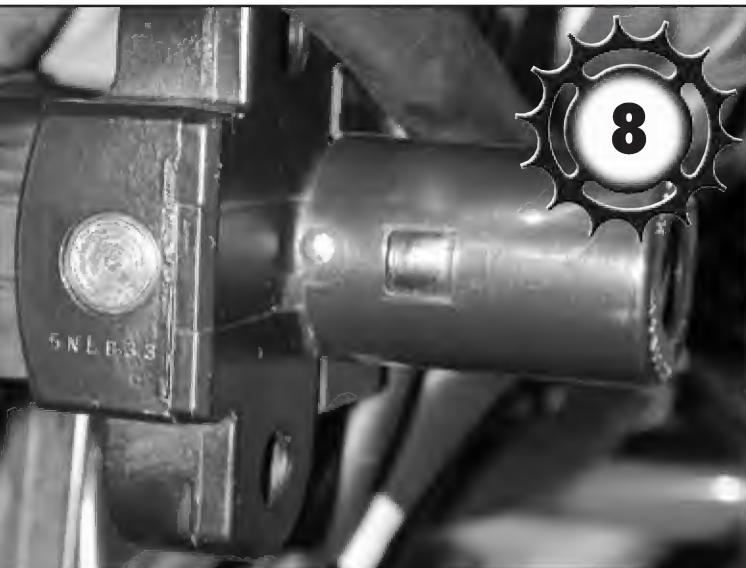


Once the bolt is removed, bend the bracket back and the code will be visible. Cut the key by code, bend the bracket back in place, replace the shear head bolt tightly by punching it clockwise, and the job is done.

The ignition lock is located on the forward edge of the handle bars bracket. Under the ignition lock housing are two T-40 Torx bolts, one on each side. Remove the bolts as shown and slide the lock down and out of the housing. If the forks are locked you will need to move the bottom of the lock forward to clear the locking bolt and then slide the lock down and out of the housing.







The code is stamped on the lock next to the fork locking bolt. Cut the key by code and replace the lock.



There is a plastic sleeve covering the ignition lock that has to be removed. There are two tabs, one on each side of the cylinder, which fit into corresponding slots in the sleeve. Use a screwdriver to pry the locking slots up so they will slide off over the tabs on the cylinder. It is difficult to get a screwdriver started so use a very small screwdriver to start the prying procedure and then switch to a larger screwdriver.



## IGNITION LOCK REMOVAL:



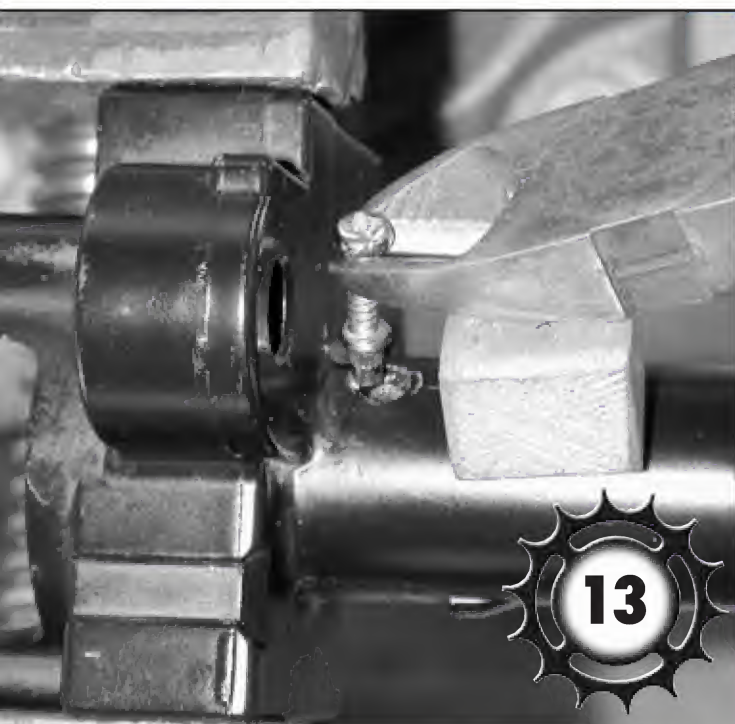
If you have to disassemble the ignition lock for rekeying, repair, or to remove a broken key, remove the three T-10 tamper resistant Torx screws that hold the switch onto the lock. The driver is seen inserted into one of the three screws. Remove the switch from the lock and the lock is free to be worked on.



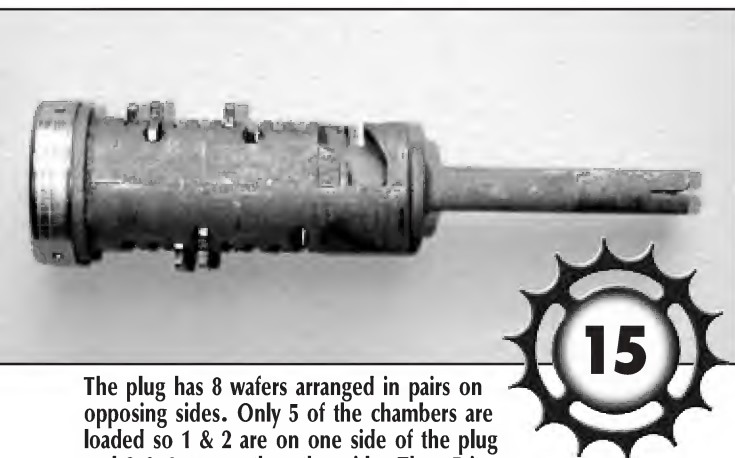
Use two screwdrivers to pry the plastic sleeve off of the cylinder. Only one screwdriver is shown here, but also use another screwdriver on the other side to get it started.

The plastic sleeve is removed and you can see the two tabs that fit into the slots in the sleeve. It is designed so the sleeve slips on easily but is difficult to remove. I drilled a hole in the center of the cylinder housing to see if there was a retaining wafer, but all I found was an empty 6th wafer chamber, so the hole you see here is not necessary. To remove the plug first drill a small hole into the retaining pin located at the rear of the cylinder as shown in the photo.

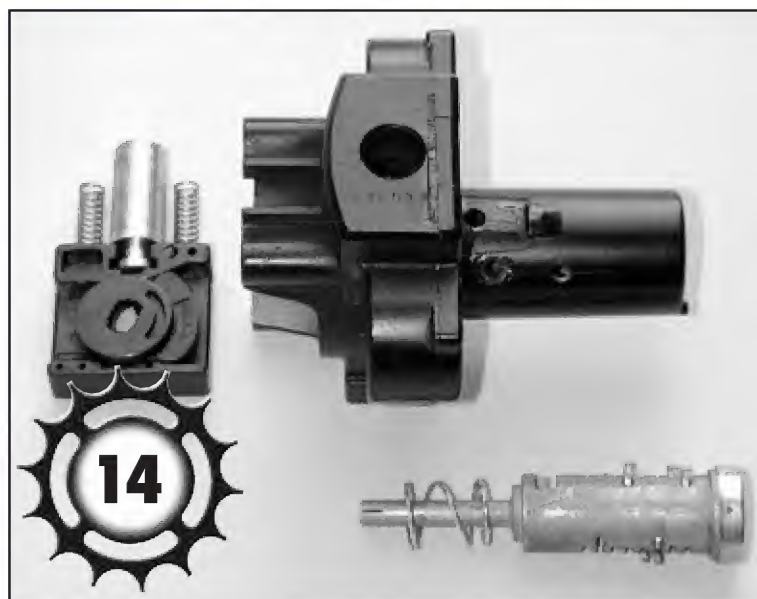




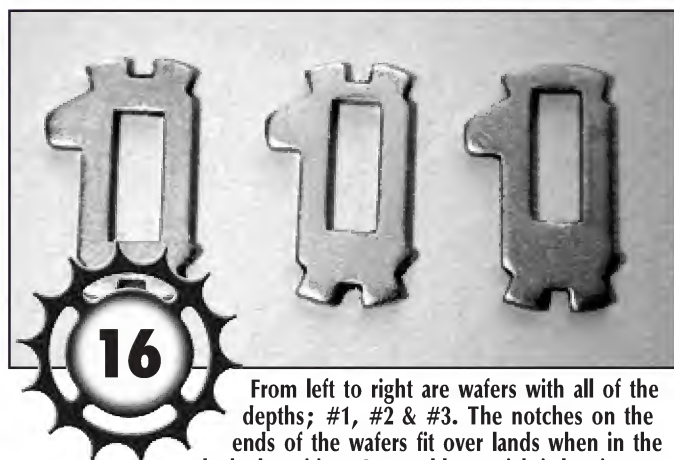
Screw a small sheet metal screw into the hole in the retainer. Then use a pair of wire cutters and a small block of wood to pull the retainer out as shown. The plug can then be pulled out the front of the cylinder.



The plug has 8 wafers arranged in pairs on opposing sides. Only 5 of the chambers are loaded so 1 & 2 are on one side of the plug and 3 & 4 are on the other side. Then 5 is on the same side as 1 & 2.



Be careful when the plug comes out as parts will be released and can fall out. There is a spring around the tailshaft of the plug and the fork locking bolt assembly can slide right out. Pay close attention to how everything comes out so you can replace it properly.



From left to right are wafers with all of the depths; #1, #2 & #3. The notches on the ends of the wafers fit over lands when in the locked position. I was able to pick it but it was not easily. I have not been able to locate a keying kit for this lock so you will have to swap wafers around to rekey it. Notice that the #2 wafer is silver in color while the other two are bronze in color. The difference in color makes these locks easy to read by looking into the keyway of an assembled lock. All silver wafers are #2 and there is a big difference in the height when reading the bronze #1 & #3 wafers. Reverse the procedure to reassemble and install the lock.

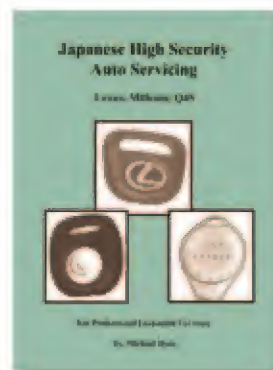
## Japanese High Security

Some of the most profitable cars are also the trickiest to work on.



CLICK HERE TO LEARN MORE

#JAP - 1





## SEAT/HELMET LOCK REMOVAL:



To remove and disassemble the seat/helmet lock, it is necessary to remove the rear seat cover, seat, rear fairing, and seat latch. Begin by removing the two Phillips bolts holding the rear seat cover on. There is one bolt on each side. This will allow the cover to be lifted off.



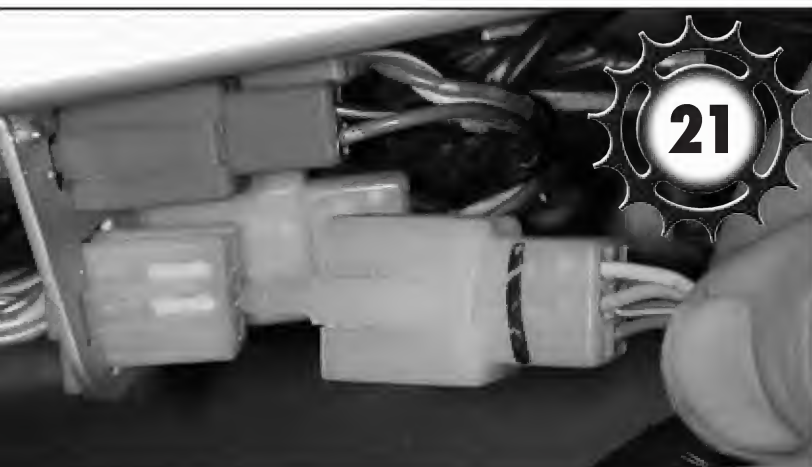
The seat/helmet lock will have to be unlocked with the key or by picking it 90 degrees clockwise. This lock usually picks easily with a rake. Then pull down on the seat release lever on the back of the lock. It is shown in photograph 4. This will allow you to raise the back of the seat and then pull it to the rear and off the bike.



Use a 5mm hex wrench to remove the two bolts holding the front of the rear fairing on. They are located on each side just above the foot pegs.



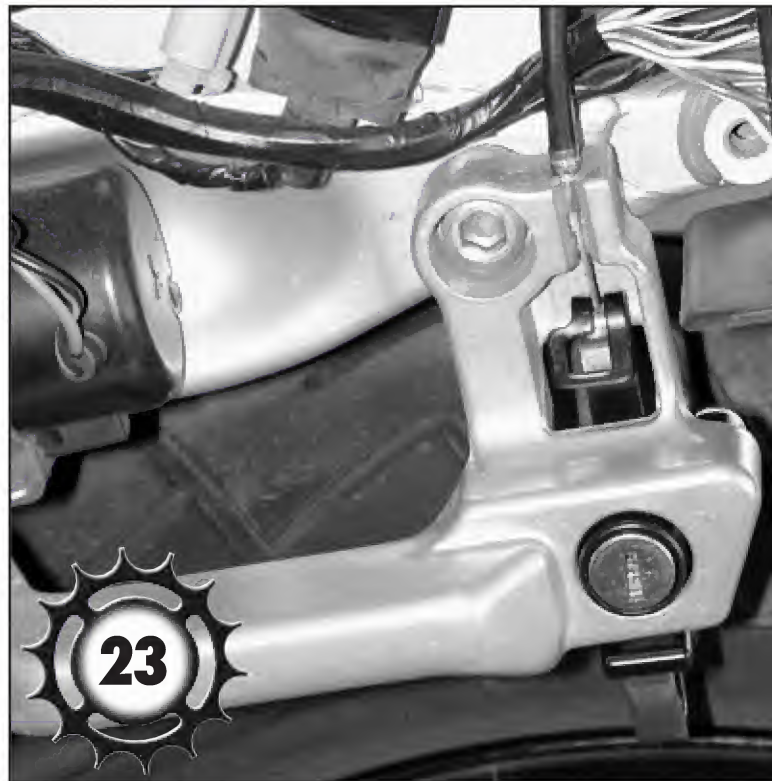
Pull on the front of the rear fairing and unsnap the tab that holds it on; repeat on the other side. These are similar to the tabs that hold automotive door panels on.



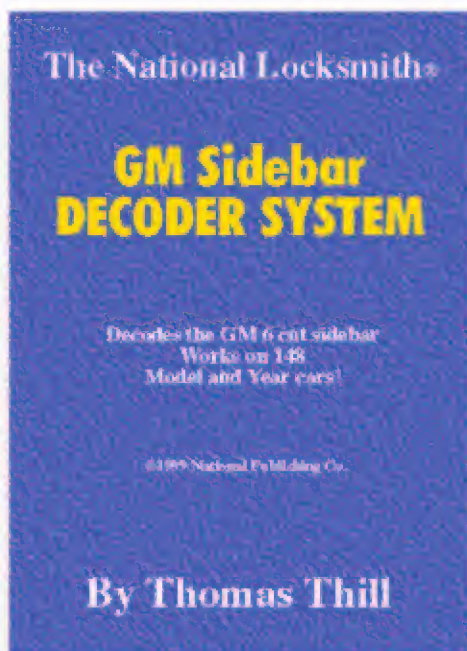
Unplug the electrical connector located inside the rear fairing just above the left passenger foot peg. You need to push the plastic locking tab in and pull on the rear of the connector to unplug it.



Remove the two 12mm bolts that hold the back of the rear fairing on. The back of the seat normally covers them. One is visible and the socket is on the other one. Now you can move the rear fairing back and off the bike. Also remove the 8mm bolt located midway between the two 12mm bolts in order to free the seat latch. The seat latch will be pulled to one side by the cable that connects it to the seat release lever to allow enough slack in the cable to remove the seat/helmet lock.



The lower end of the seat release cable housing has to be pulled up out of its housing and then lowered so the end of the cable can be removed from the seat release lever. Also remove both shear head bolts and the bracket from the back of the lock as shown in photograph 4.



## GM Sidebar Lock Decoder System

Tom Thill, the author of a new book, has invented an amazing new way to make keys for six cut GM Sidebar Locks.

CLICK HERE TO LEARN MORE



#TT - 1

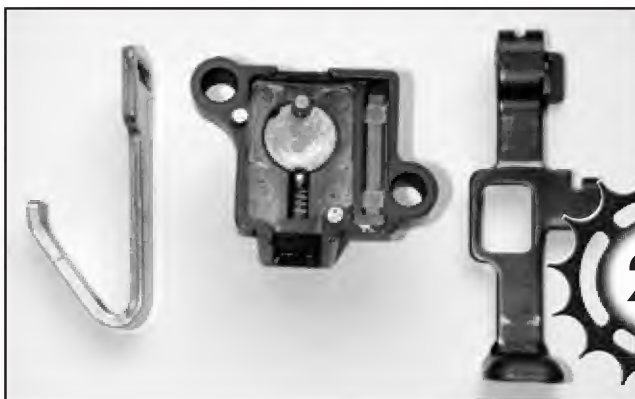




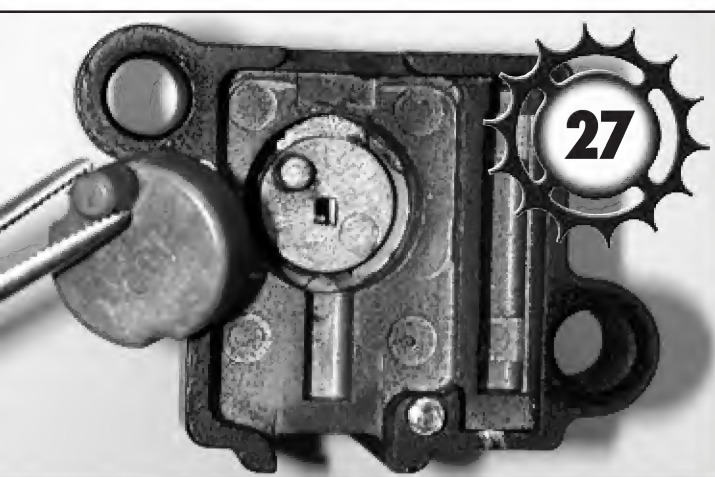
The cable is removed from the seat release lever. The lever has to be lowered to clear its housing and allow the seat/helmet lock to be removed. The photograph shows the lever lowered almost enough to clear the housing. After the lever clears the housing the key can be turned to the locked position and removed so the lock can come out the rear of the housing. If you picked the lock, it does not have to be turned back to the locked position since the key will not obstruct removal.



Place the lock in a vice using a rag for padding so you don't harm the finish on the front of the lock. Use a Dremel or similar tool to remove the flared part of the two stakes. The photograph shows one stake completed and the Dremel ready to do the second stake. Hold the Dremel firmly using both hands because it gets away easily. Once the flares are removed, work a knife blade between the backing plate and the housing. It can then be pried off using a screwdriver.



The backing plate has been removed. The seat release lever was removed next and placed on the right. The helmet lock lever was then removed and placed on the left. You can see the detent ball bearing and spring inside the lock. Carefully remove and store them.

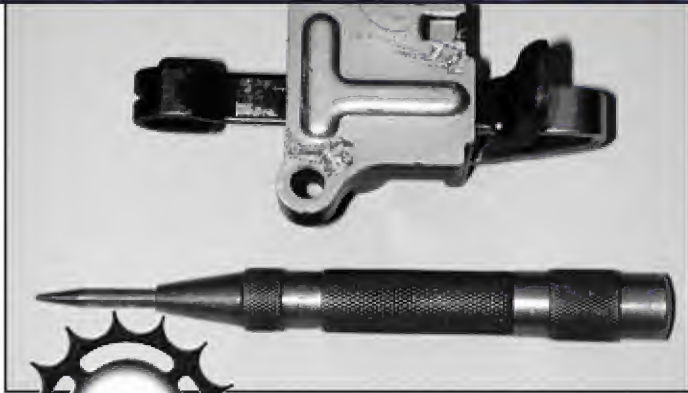


The tailpiece is shown being removed which reveals the retaining wafer at the top of the plug. Depress the retainer into the plug and push the plug out the front of the lock. It took a good whack with a hammer and punch to remove this plug from the lock. Even though the retainer can be pulled into the plug of the assembled lock using a pick through the keyway, it would be very difficult to pull the plug out damage free in an effort to avoid disassembly.



The plug is removed from the lock showing all 5 wafers present. The code is stamped on the original key. The cuts for code B33 is 21332. Notice that the #2 wafers are silver in color thus making this lock easy to read. This lock uses the ASP A-19-101 keying kit, which is also used on Honda automobile door and trunk locks throughout the 80's.





29

Reassemble the lock in reverse order and flare out the backing plate stakes using a spring-loaded center punch. Install the lock, cable, seat latch, rear fairing, seat, and rear seat cover to complete this job.

## GAS CAP REMOVAL:



30

The gas cap is shown with the dust cover raised. Three of the 5mm hex bolts have been removed which will allow the gas cap assembly to be removed once the cap is unlocked. The other four bolts are cosmetic.



31

The gas cap assembly is shown removed from the motorcycle. The two locking bolts are retracted in the unlocked position. The way to lock the cap so the key can be removed is to push in on both sides of the gasket at the same time. This simulates pushing the gas cap down into the filler neck, which is the normal way the cap is locked.

# 15 Minute Safe Opening



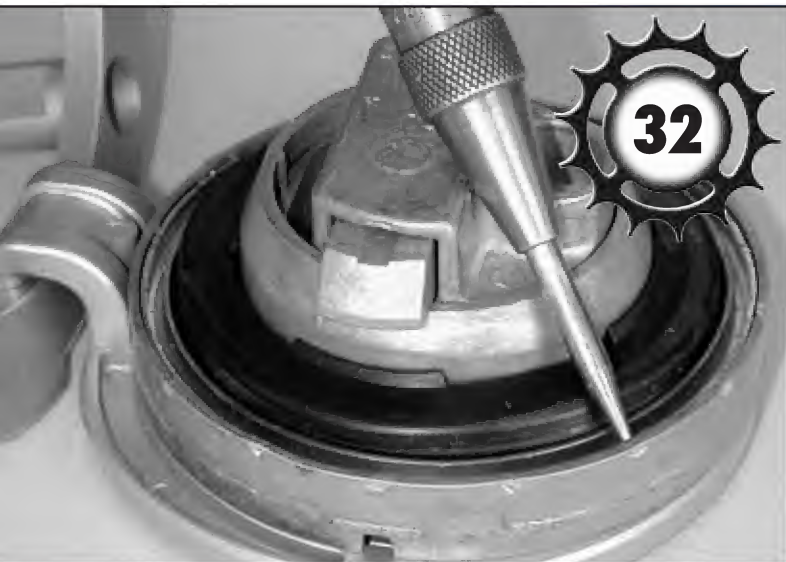
This book deals exclusively with round head lift out doors. Shows five ways to open a Major; three ways to find the Dog Pin on a Major; four ways to open a Star; four ways to open a LaGuard style round head.

CLICK HERE TO LEARN MORE



#JJ - 1





The gas cap housing is crimped at 16 points around its edge to secure the gasket retaining ring in the housing. Use a spring-loaded center punch to punch out each crimp so the retaining ring can be removed.



Screw a small sheet metal screw into the channel in the retaining ring. Then use a pair of side cutters to grab the screw and pull the retaining ring out of the housing as shown.

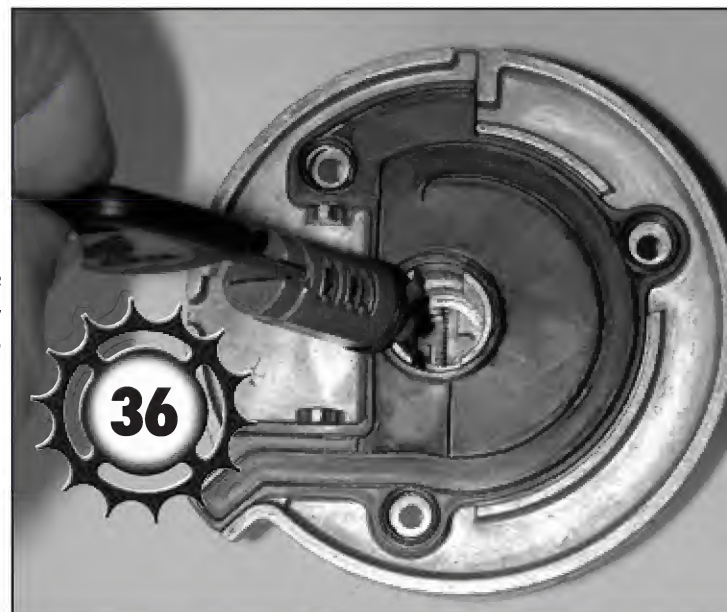


After the retaining ring is removed, the gasket and then the gasket backing ring are easily removed. Now you can see three small Phillips screws that have to be removed. One of the screws is under one of the two locking bolts. If you picked the gas cap to remove it, the bolts will be retracted and out of the way. In this case the bolts will need to be retracted by unlocking the cap with the key or by picking it to get a screwdriver on the third screw.

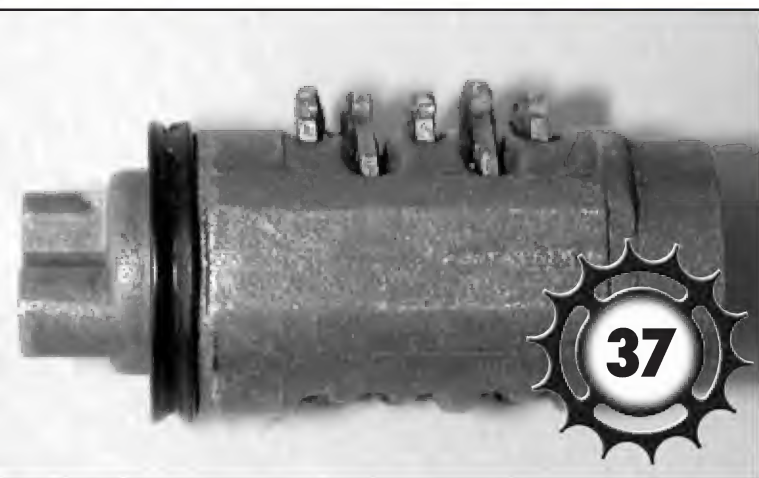


Remove the three screws and the lock assembly from the cover plate. The plug is now free to be pulled out the front of the housing.

The plug has been pulled from the housing using the key while in the unlocked position. It is best to remove the plug while it is in the unlocked position because the locking bolts are retracted and will stay in position. If you remove the plug while in the locked position they will spring out slightly and the plug is difficult to put back in. The best thing to do in that case is to squeeze the locking bolts in with your fingers until they click into the unlocked position.







The plug is removed showing all five wafers present. The #2 wafers are silver which make this an easy lock to read. This lock also uses the ASP A-19-101 keying kit. Notice the sealing ring around the tail of the plug. If this ring comes off in the housing during removal, be sure to replace it before putting it back in the housing.



Reassemble the plug, lock assembly, gasket backing ring, gasket, and gasket retaining ring. Use a screwdriver in the channel of the retaining ring to push it down, compressing the edge of the gasket. Use a spring-loaded center punch to recrimp the edge of the housing over the retaining ring. Reposition the screwdriver and punch to recrimp each of the 16 crimping points in turn. Install the gas cap assembly on the motorcycle and the job is done.

### CONCLUSION:

The locks on this motorcycle are not meant to be disassembled. Honda would rather sell a new lock set to replace all three locks. The Honda lock set part number is 35010-MZ7-600 and it retails for \$236.14. This lock set fits 1994 to 1997 Honda VFR750 motorcycles. The ignition lock assembly, Honda part number 35100-MZ7-601, retails for \$113.68. The seat/helmet lock assembly, Honda part number 77110-ML7-600, retails for \$55.53. The gas cap assembly, Honda part number 17620-MT4-010, retails for \$161.16. The three lock assemblies bought separately retail for \$330.37.

ASP sells two different ignition lock assemblies for 1979-up Honda motorcycles for only \$29.50 each. The keying kits that fit them have wafers with 4 depths, so the locks would not be compatible with the other two locks on this motorcycle if they fit on this motorcycle at all.

**Codes:** A00-A99 & B00-B99 use Ilco X84 (HD74), Curtis HD74, Silca HON39  
**Codes:** C00-C99 & D00-D99 use Ilco X138 (HD75), Curtis HD75, Silca HON31  
**Spacing:** 1=.098 2=.197 3=.295 4=.394 5=.492  
**Depths:** 1=.276 2=.244 3=.213  
**HPC Card Number:** CMC37  
**ITL Number:** 214  
**Curtis:** HD-4 Cam & HD-8A Carriage

TNL



## Locksmith Dispatcher 2000

Controlled Service dispatching software specifically for the locksmith!

CLICK HERE TO LEARN MORE



#DIS - 2000





By  
Dale W. Cloud  
CMS

The stage is set. A customer is having trouble with his combination lock. The complaint is that it takes about 10 times dialing before he can get it open. A mystery that is easy to solve once we get our hands on the combination lock and take it apart and service it correctly.

I never cross examine a customer on the phone about the safe or lock. If they offer any information, that is good, but it seems that the phone is never near the safe. I get the address and tell the customer when I will show up. The same with car openings. On older cars, the customer is not sure of the exact year, make and model. Makes no difference, I will take care of it. (Famous last words, right?)

Arriving at the safe job, I was set to dazzle the pet store owner with my dialing proficiency and skill. Imagine my surprise when I could not get the safe open on the combination. The secretary then said that you had to dial above and below the numbers before it would open. She got it open on the eighth try. I looked at the lock and it was a LaGard 3300 type lock. I knew immediately what the problem was.

I asked the owner to witness what was about to happen. I took the back cover off the lock and showed the owner the pile of "Pixie Dust" in the bottom of the case of the LaGard lock. A complete tear down and cleaning was required.

When I left, the lock was working perfectly on the combination. Before the cure, let us talk about combination changing, and then I will share an E-mail I had with Carl Cloud that addresses the LaPd issue.

When changing a combination on a key changeable safe lock, it is not just sticking in the key and changing combinations. I charge a lot to change the combination of a lock, for I always take apart the lock, take off the wheels and check the movable fly's; I also check the tightness of the four case screws. I then apply Locktite to the screws.

I remove the lever and check it for unusual wear. The last thing I do is to

remove the drive cam and remove the dial. I check the tightness of the dial ring screws and Locktite them as well. I then lubricate the spindle if necessary and check alignment.

Once the physical examination of the lock and all moving parts is done, I reassemble the lock and then I change the combination. (Assuming that everything checks out). The reason that I do this is the customer thinks that once you change the combination of the lock everything that happens after that is covered by the services that you provided when changing the combination.

That is why you have to do a good thorough job. You are putting either your or your company's name on the safe. You are really stating that you will be responsible for the working of said safe or lock for a specific length of time. That is why a combination change takes time and costs the customer some money. Do not shortchange yourself. A call-back for something you did is very costly. Of course, there is the "safe abuse" clause, stating that all Warranties are void if the safe has been abused.

What constitutes abuse the customer will ask? Slamming the door with the bolts out, slamming the door, whipping the dial, hammering the handle, etc. Anything you want can generate abuse. A value judgement must be made by you.

Back to the pet store. I disassembled the lock completely, cleaned it, tighten the dial ring screws and Locktite them. When I was done, the old combination worked perfectly. The customer was happy.

Whenever I have to work on a lock on a safe, I have the customer open the safe. That way I see if the person whips the dial around or slams the opening handle. A lot can be told by watching the customer work the safe before performing proper safe servicing techniques.

I wrote to Carl Cloud for his opinion on LaPd. Here are the letters, more or less. (Cloudy@drillpoint.com)

Dale: I know exactly what you



Dear Carl:  
I have been working on a lot of LaGard locks that when opened, have a powder residue in the bottom of the lock. It looks like graphite powder, but it is not. Have you experienced this, and what is the fix? I usually sell the customer a new lock just to cover myself.

Something is obviously wearing down. If I leave the lock on the safe, am I locking for trouble down the road?

Dale

alking about - that dark gray powder. When I service one of these locks and wipe and clean the parts, I always find it either on the wheel post or the post of the drive cam where it is in constant contact with the inner cone on the wheel post. There is no doubt in my mind that this powder is the wearing away of the cast Zamac material. I have tried to duplicate it by filing or sanding a piece of cast material, but I have never created the ultra fine powder.

LaGard says there is no need to lubricate their locks because all parts are coated with Teflon. They do not say what to do when the coating wears away!

I find the powder in a lock, I tell the lock is showing wear. If he says it replaced, I advise him that I have no warranty. (My warranty is for a period of time, and only covers the trip charge, never the parts.) If the lock is not replaced, I will lube it just as I would any lock.

If the bottom of the fence is grooved, I'll file the grooves away to add clearance between it and the edge of the wheels.

LaGard locks have some nice features: the angle of the lever stop to prevent lever bind due to bolt end pressure. I also like their easily installed lever spring design, the hand change ability of the 1980 MP locks, the captured mounting screws and the "Fish" guard are also great features.

I just wish they would get away from cast parts! I don't think any manufacturer is bettering their products by using cast parts and wheels.

P.S. What station are you picking up on that J.P. safe radio?

Carl: I could not have said it better. I like LaGard locks too, but recently I do not like the LaPD problem.

The radio Carl is talking about is the J.P. safe in my picture at the beginning of the article. I have the headphones on and am using the Safe Snooper. It does look like I am listening to a radio. If I were, I would be listening to Hard Lock, or possibly listening to Scott Anderson, king of Arkansas talk radio.

Either way, open, service, take time to change the combination completely and all related parts, and prosper! **TRL**



## Guide to Motorcycles

For years locksmiths have begged for a comprehensive service manual on motorcycles and its finally here!

[CLICK HERE TO LEARN MORE](#)



#MOT - 2



# Quick Entry

## UPDATE

by  
Steve  
Young



### VOLKSWAGEN PASSAT & AUDI A4

As we enter the 2000 model year, many things are drawing to a close. One of those things is an institution that has been with us since the early 1950s, the "German made Volkswagen". Of the three passenger cars that VW sells in North America, only the Passat is still made in Germany. Both the Beetle and the Jetta are now being built in Mexico.



1. 1999  
Volkswagen Passat.



2. Use two wedges to open a gap.



3. Insert the tool between the two wedges.



4. Use the tip of the tool on the power door lock.



The Cabrio and the Eurovan are still being made in Germany, but both of those vehicles are sold here in very limited numbers. The Cabrio is essentially a convertible version of the Jetta and I suspect it won't be long before VW either starts building them in Mexico or stops selling them in North America.

The Passat is an entirely different story. (See photograph 1.) This vehicle is extremely popular all over the world and is very close to being the first real "World Car." In addition, the Audi A4 is essentially a VW Passat with attitude. As popular as these vehicles are, I expect them to keep coming from Germany for at least the next few years.

The German origin of these vehicles does make a large difference when it comes to unlocking them. We disassembled the doors on a Beetle, a Jetta and a Passat all in one day while taping last year's car opening video. By far the hardest door to disassemble was the Passat. It took at least twice as long as the other two and in the end it was a total waste of time.

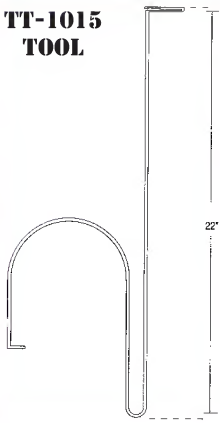
The linkages inside the door are totally shielded by a sheet metal panel that is bolted to the inner skin of the door. The only way that we could find to unlock the Passat/Audi A4 was to use the TT-1015 "Under Window Tool". (See illustration A.) Even using the TT-1015 proved to be difficult because the weather-stripping fits very tightly along the base of the window.

To unlock the Passat or the Audi A4 with the TT-1015 tool, begin by using two wedges to open the base of the window just forward from the center of the front door. (See photograph 2.) When you insert the wedges, be careful that you get the tip of the wedge behind both layers of the weather-stripping. I begin by inserting a strip of plastic, cut from the side of a plastic jug, between the glass and the rubber. Once the plastic is in place, I slide the wedge between the plastic strip and the glass to keep from damaging the weather-strip. When I'm sure that the tip of the wedge is below the weather-strip, I pull the plastic strip out of the door and then seat the wedge.

When you have opened a wide enough gap into the door cavity,

<b>Quick Reference Guide</b>	
<p><b>Vehicle:</b> Volkswagen Passat &amp; Audi A4 98-99</p> <p><b>Direction Of Turn:</b> Counter clockwise (pass. side)</p> <p><b>Tool:</b> TT-1015 (Under Window Tool)</p> <p><b>Lock System:</b> High-Security (Sidewinder)</p> <p><b>Code Series:</b> 00001-05000</p> <p><b>Code Location:</b> No codes on car</p>	<p><b>Security System:</b> Transponder added in 1999</p> <p><b>Key Blank (non-transponder):</b> Ilco HU66-P, Silca HU66, Jet HU66VW-PH</p> <p><b>Key Blank (transponder):</b> Jet HU66VWNPHT (requires Jet ETD-1 or ETD-2 cloning device for duplication)</p> <p><b>Bitting:</b> Ignition 1-8, Doors 1-8, Glove Box 6-8</p>

**TT-1015 TOOL**



insert the tool into the door between the two wedges. (See photograph 3.) Once the upper bend of the tool is below the bottom of the window glass, flex and lift the tool so that the upper bend slides up the inner surface of the window glass. As soon as you are sure that the tool is in position to be pulled up on the inside of the door stop and remove the wedges from the door. It is very important to remove the wedges prior to pulling the tool up on the inside of the door. Failure to remove the wedges can result in breaking the window glass.

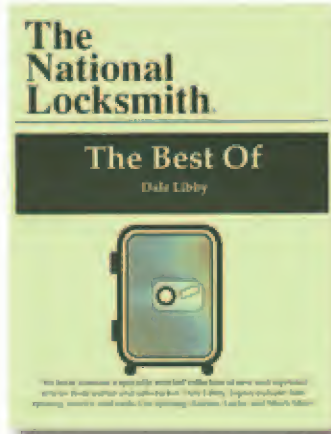
Removing the wedges is very important because it takes most of the pressure off of the glass, allowing you to pull the tool up much more easily and safely. Once the tip of the tool is free of the inner weather-stripping, work the tool forward until you can operate the inside power door lock control with the tip of the tool. (See photograph 4).

If the battery is dead, or the power door lock does not work, place the tip of the tool between the inside edge of

the door handle and the plastic trim around the handle. Lever the handle out until the door is unlocked. It will not be necessary to actually open the door by pulling the inside handle. After the handle has been pulled about half way out, the door will unlock and you will be able to open the door by using the outside door handle.

Both the VW Passat and the Audi A4 can also be unlocked with the Jiffy-Jak Vehicle Entry System. **INL**

## The Best of Dale Libby



This book includes the best articles written by Dale Libby over the course of many years, going back well over ten years! Now you can have this terrific collection of safe opening articles, automotive articles, and more.

**CLICK HERE TO LEARN MORE**

#DALE





# The LIGHTER Side

"Pick-Along Probasco"



by  
**Sara  
Probasco**

**"H**elp! I'm locked inside the carwash on East Main Street!"

The after-hours call came right on schedule - dinner time. I had just set a steaming plate of pot roast in front of Don, and he was preparing to dig in with gusto.

"How does somebody get locked inside a carwash?" Don muttered and reached for the receiver. He scowled in my direction as if he thought I had the answer.

"They had finished with my car, and I had already paid," the customer explained, "and I went inside the building to use their restroom. I guess nobody saw me go in, or else I was in there too long, or something. Anyhow, when I came out of the restroom, all the lights were off, the doors were locked, and everybody was gone."

"Did you try the back door? Maybe there's a panic bar, a thumb-latch bolt, some kind of emergency exit." Don suggested as he is longingly eyeing his rapidly cooling dinner.

"You'd have to have a key to get out of here. Even the windows won't open. They're all plate glass," the man replied. "I had a heck of a time even finding the telephone to call you guys," he added. "Would you believe, the only phone in this joint is a pay phone! I'm just lucky I had some change."

Don assured the man he would be right over to get him out.

As he hung up the receiver, his mind began to whirl. He was

remembering a recent gab-fest that had taken place among the employees.

"Best stories about people getting locked in, somewhere!" Keith suggested as

a topic of discussion one "Maytag repairman" kind of day at our store.

"Remember when the employees of the radio station were having 'happy hour' in the broadcasting room, one Friday, and they managed to lock themselves in?" Don asked.

"Yeah. Nobody really cared much if they got out or not, except for the poor guy who was trying to broadcast with all the partying going on around him."

"Speaking of partying, what about the man who got locked inside that walk-in vault full of 'collector's' beer and wine!" Keith contributed.

"Was that when his boss was calling all over, comparing locksmiths' after-hours prices and finally decided

to make the poor slob wait until morning, when the rates went down?" Rickie asked, laughing.

"Yeah, and when they finally got it open, the employee had polished off a prize collection of hundred-dollar-a-bottle beer," Keith chimed in with a chuckle.

"Yeah, yeah, yeah! But the best one was that little old lady who locked everything up for the night - storm doors, shutters, and six or eight locks and bolts on every door - and then misplaced her keys somewhere inside the house," Don added. "You know, getting in wouldn't have been so bad, if it hadn't been for that big, mean dog she kept in the yard that kept gnawing on my leg!"

"Well, what about the lady who got me to open her locked car, only to discover it wasn't her car at all! Remember, hers was the identical make, model, and color, parked a half-block farther down the street?" Rickie said.

**"W**as that the time when the real owner came charging out of his office, raising Cain about you fooling with his car?" Harold asked.

"Yeah," Rickie admitted.

"I don't see how that qualifies as a lock-in," Harold added.

"Well, I guess it is stretching the point some, but after the guy stormed back into his office the lady discovered she'd left her purse inside his car - which had been re-locked by this





time - so I had to go in the guy's office and get his permission to re-open his car to retrieve her purse."

"I don't understand," Harold said. "The guy was already mad. Instead of getting him all hot and bothered again, why didn't you just quietly open up his car yourself and get the lady's purse for her? You'd already gotten in it once, that day."

"Ah, but there were different circumstances, then," Don explained. "The first time, Rickie had been assured the vehicle belonged to the lady. Even though she was mistaken, Rickie was operating under good faith that the car was hers. The second time, Rickie knew the vehicle belonged to somebody else. Opening it without the owner's permission would have constituted illegal entry."

Don suddenly realized that getting the man out of the locked carwash building was the same sort of problem. He could not legally pick open the door of that business without permission from the owner or manager, unless there was a true emergency. The carwash had recently changed hands, and Don had no idea who owned or managed that business now.

Furthermore, he had failed to get the number of the pay phone from which the man was calling, so Don couldn't even call him back to advise him of a potential delay while attempting to locate someone to help.

After making a myriad of phone calls around the area, we finally established that the carwash was no longer owned locally, but no one seemed to know how to contact the owner.

Unable to resolve the matter otherwise, and realizing that the man was probably growing frantic about being locked inside that small, dark building, Don finally gave up and summoned the police.

With all the faldral of a "robbery in progress," three patrol cars converged at the location, lights and sirens fully engaged, and stood guard while Don picked open a door and let the very startled man out of the building.

"Why all the commotion?" I asked when Don had finally returned home to his warmed-over dinner and was relating the events of the evening.

"I guess they thought they had to be careful. After all, I suppose the guy could have been a potential burglar who deliberately hid inside until everybody was gone, intending to rob the place," he said. "To their credit, I must say they were Johnny-on-the-spot getting out there."

"But descending like that on that poor man! It sounds like they expected him to be 'armed and dangerous!'"

"Well, the guy did admit he'd gotten hungry and ate one of the store's candy bars," Don said. "I'm just glad that eager-beaver bunch didn't drive by and see me trying to pick the place open in the dark."

A sly little smile twisted the corners of Don's lips. "I guess I've missed a golden opportunity to be immortalized."

"How's that?" I asked.

"Well, if things had gone a little differently, that guy and I might have gone down in the annals of West Texas history as 'Pick-along Probasco and the Candy-bar Kid'."

TNL



## The National Locksmith Magazine Subscription

This is THE source for automotive technology, safe opening techniques, electronic security and much, much more.

CLICK HERE TO LEARN MORE



#SUB - 1,2,3,4,5,6



# Vaults & Tear Gas Part 2



by  
Carl Cloud

Over a span of thirty-seven years, I have only encountered tear gas three times. Once in a Federal Court House vault, once in a post office and another time in an old record safe being used in a small business. I had to drill open the courthouse vault and wasn't aware of the gas until I removed the inner door panel to the safe lock. (See photograph 1.)

The tear gas was contained within a glass tube. The tube was approximately twelve inches long and shaped into a figure S. It was secured with a metal bracket into the bottom of a shallow metal bowl. The bowl was mounted directly behind the safe lock case with the glass tube facing the back cover of the lock.

When this gas container was installed, the mode of attack on the vault was to break off the dial and punch the spindle into the lock case. This attempt to drive the wheel pack out of the case would knock the back cover off, which would impact the glass vials and release the tear gas.



1. The bowl container housing the tear gas tube.

A lightweight chain held a gravity type relocker up to block the movement of the lock bolt carriage bar. (See photograph 2.) The bowl was held in place by machine bolts that passed through the four corner flanges and threaded into an oversize lock mounting plate.

After thoroughly scrutinizing this odd attachment from all sides, I

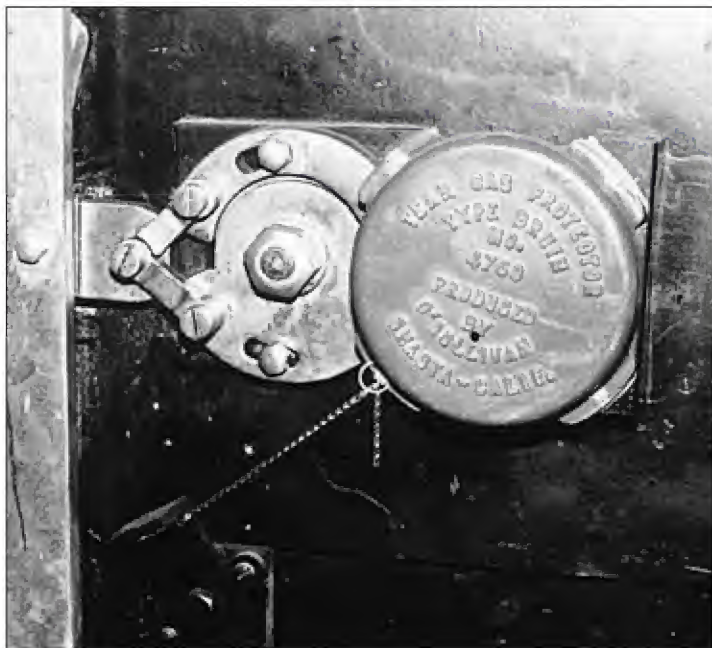
gingerly began removing mounting bolts. I figured, if it was bolted in place it could be unbolted and removed. With the last bolt loose, I carefully moved it away from the lock. Slowly I tipped the bowl over to view the bottom side. Yes - there was a glass vial and I could see liquid ebbing back and forth in the 'S' shaped tube. (See photograph 3.) I had a hand full of tear gas here! I quickly folded at least a dozen shop towels to create a very soft resting location for this spooky stuff.

I notified the building maintenance supervisor of the situation and advised him that California is one of the many States where tear gas in safes or vaults is illegal.

He was totally unaware of tear gas being present in his building and was anxious to have it removed. After a brief discussion of what to do, he asked if I could dispose of it. Unaware of its potential danger, I said sure.

In retrospect, this was a very stupid offer! I was teaching safe classes and I thought this would be a real trophy to





2. The tear gas bowl was attached directly behind the combination lock.

show my students! Although I had the entire bowl encased in Plexiglas, it was far from being secure. I'm sure there are readers who will recall seeing this tear gas container in one of my classes. When I became aware of the possible chemical change to a deadly gas, I called the Hazardous Materials Department and asked where I could take this tear gas, they said NOWHERE! It can become as

deadly as cyanide gas. They would come and pick it up and safely depose of it. Oh yes, that little pick-up cost me \$250! But for me, it was well worth it!

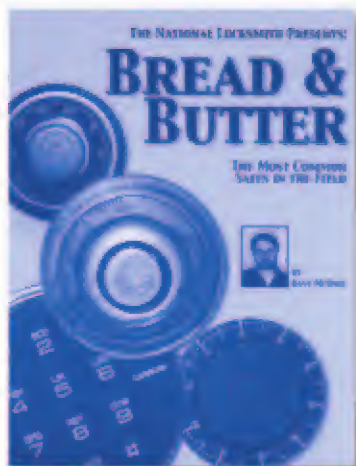
A year or so later, I was called to a business to service an old safe. When I remove the back door cover, there was a single vial of tear gas. A make shift bracket held the glass vial against the back of the lock case. When I informed the business owner



3. Tear gas contained within an "S" shaped glass tube.

of what I had found, he thought it was really great! At least until I convinced him of the potential deaths that it might cause.

If you are not sure about the laws on tear gas in your state, check with your fire department. If you find what you think is a tear gas container, DON'T mess with it! Call a hazardous waste disposal company and have them remove it. **TRIL**



## Bread & Butter

Now here is one amazing value!

[CLICK HERE TO LEARN MORE](#)



#BB - 01



2000



by  
Randy Mize



FOCUS

**A**ppearing more like a 1/32 scale model of the Ford Contour or Mercury Mystique, it's no wonder much attention hasn't been paid to Ford's newest little car - the Focus. Originally designed to replace the ubiquitous Escort, the high production cost of this compact gave it a mid-size price tag and, thus, placed it as the little brother to the Contour and Mystique. (See photograph 1.)

Ignoring the styling and pricing issues of this newcomer, the lock system of the Focus, while a dead knockoff of the Contour/Mystique, presents some challenging features for the locksmith.

Like the Contour/Mystique, the exterior lock and handle linkage is completely covered. The inside handle and lock

H.E. Mitchell's EEZ-Reader. Other key generation methods include retrieving a key code from the dealer or roadside assistance, and/or impressioning. If it is necessary to remove a door lock for key generation, be prepared for some rough sailing, and you can forget the deck lock.

While key generation is still fairly simple, Ford has made the locks on the Focus not only expensive, but also fairly difficult to service. Posing the worst service problems is the deck/trunk lock that can be neither repaired nor rekeyed. In other words, if it's broke, replace it!

Despite being a compact, the Focus comes equipped with Ford's PATS system, requiring Ford's PATS II programming procedures and a new encrypted transponder key.

While looking almost identical to Ford's original PATS key, there are a few telltale signs that help



**The 2000 Focus.**



linkage, like the Contour/Mystique, are cable driven. Opening will be a challenge on this vehicle.

The ignition lock is virtually identical as well. In fact, except for a keyway change, the BWD's LC1340U or LC1340LK Contour/Mystique ignition lock can be used as an emergency replacement lock.

As for the differences, the Focus is using Ford's 8-Cut system. The locks and keys are manufactured by Huf and are currently only available through a Ford dealership, although initial tests show that they can be keyed using BWD's SK5011 kit.

Like most other Ford 8-Cut vehicles, key generation is fairly simple when using the Ford 8-Cut Determinator or

distinguish the encrypted key from the older version.

The most obvious is that the length of the blade is longer on the new encrypted key. Still, with the various aftermarket keys available, blade length alone should not be used as the determining factor. To make positive identification, Ford stamps all encrypted keys with a two-digit insignia on the key's blade near the bow.

The first digit of this insignia is always a letter; the second digit is always a number. The key, for example, on the Focus serviced in this article was stamped with "H1." The "H" in this case, was the easily distinguishable Huf "H" trademark. Keys for other models using the encrypted key (Cougar, LS6, LS8 and Taurus/Sable) have similar two digit markings.

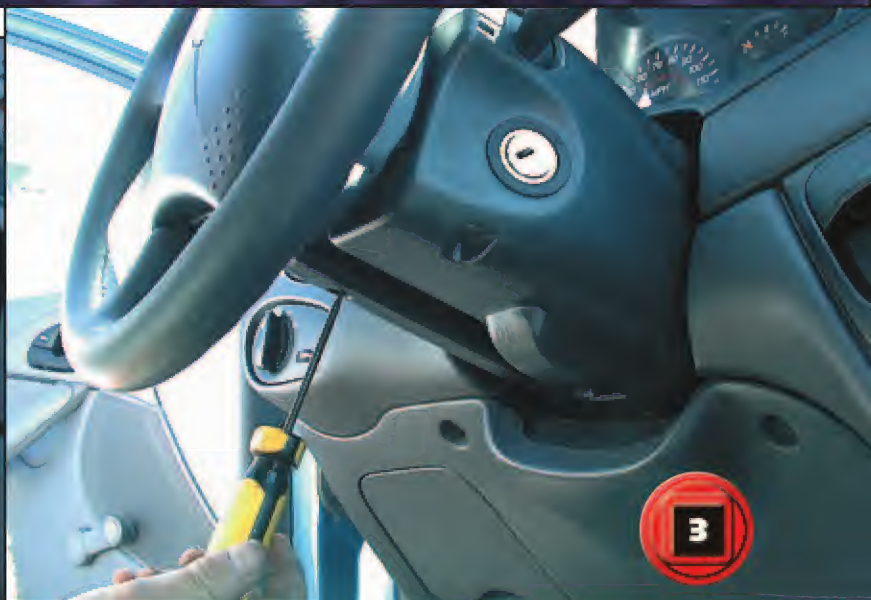
For key replacement, use the Ilco H74.

Now, let's service the locks:

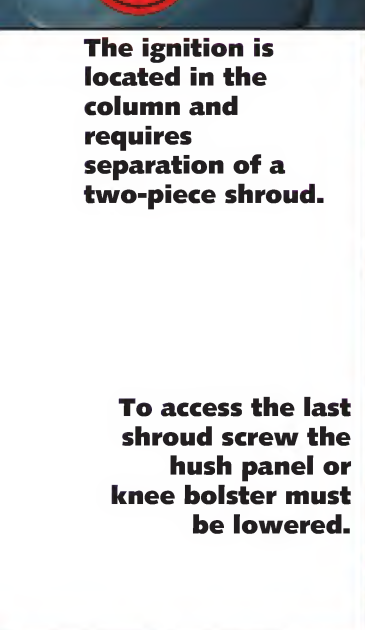




The ignition is located in the column and requires separation of a two-piece shroud.



Start by removing two of the three T-20 Torx screws.



To access the last shroud screw the hush panel or knee bolster must be lowered.

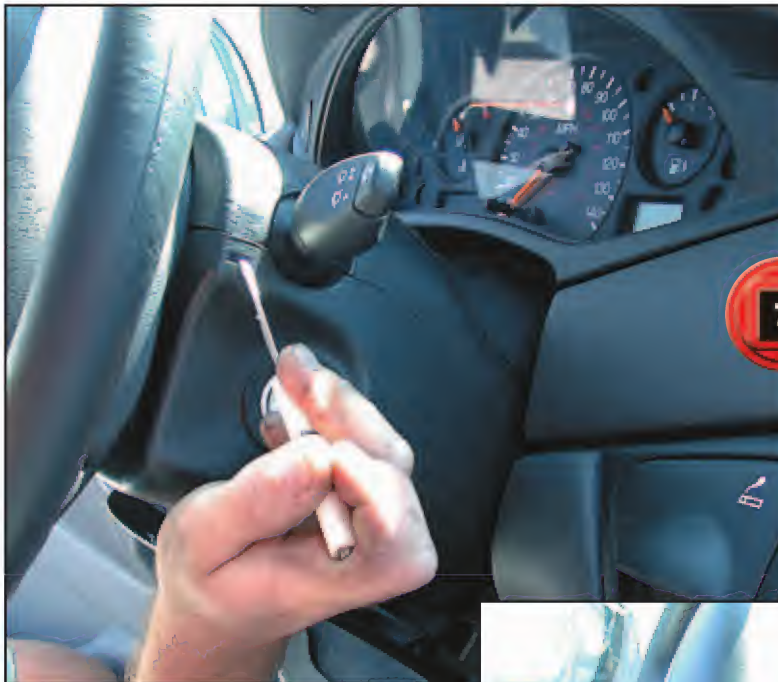


Remove the four 8mm bolts that hold up the hush panel.



Remove the last of the shroud screws.



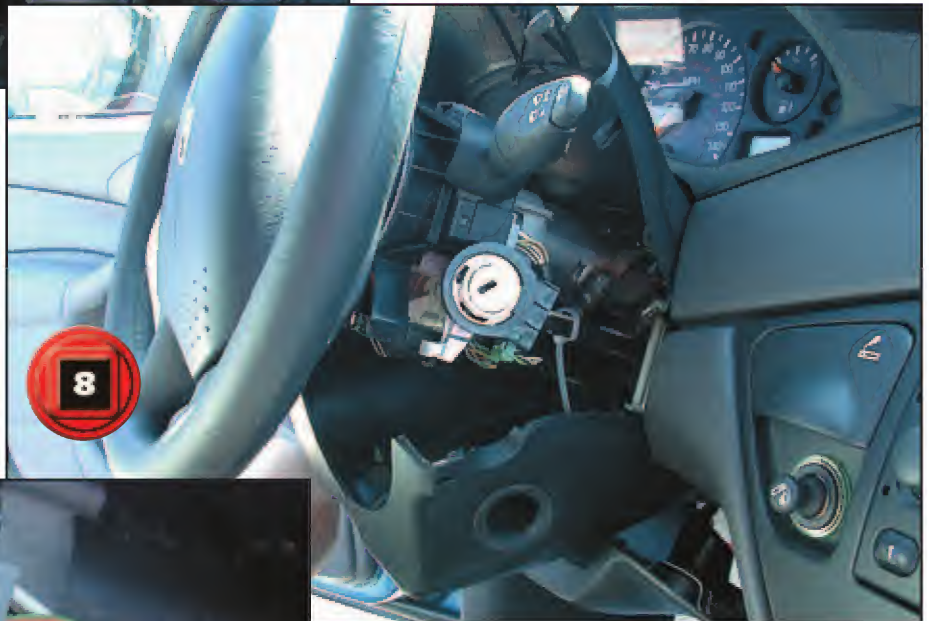


7



Use a small screwdriver to carefully depress the tabs that hold the shroud halves together.

Separate the shroud halves.



8



Turn the lock to the "ON" position and depress the lock retaining button. If a key is not available, it is necessary to drill.

112 • The National Locksmith



10

Except for using Ford's 8-Cut keyway, this lock is identical to the older 10-Cut Contour/Mystique ignition.



Manufactured by Huf, no aftermarket locks are yet available. Use BWD's LC1340U or LC1340LK as an emergency replacement lock.



The door lock is part of the door handle.



Start by first removing the door panel.



Six T-20 Torx screws can be found around the perimeter of the door.



A small screw is hidden behind the door handle, and must be removed.





**Using a small screwdriver, remove the small cap to expose the screw, and remove the screw.**



**Remove the handle trim cover and the two T-30 screws that hold the handle to the door.**



**Remove the window lever.**

**Gently remove the handle trim faceplate.**



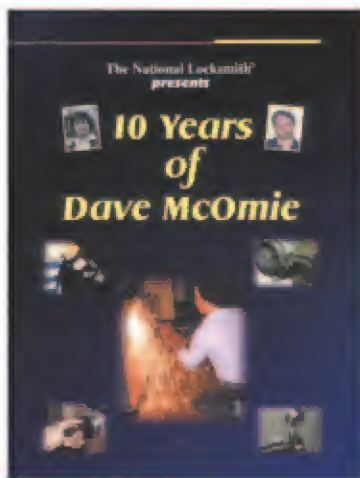


**Complete removing the door panel and lower the moisture/sound barrier material to expose the lock handle and linkage.**

**Two T-15 Torx screws hold the handle to the door. The cables and guards limit access to the screws.**



**Appearances can be deceiving. The latch side T-15 screw actually holds a bezel on over the lock.**



## 10 Years of Dave McOmie

Every single National Locksmith article by Dave McOmie from August 1986 through August 1996 under one cover!

[CLICK HERE TO LEARN MORE](#)

#DM - 10



January 2000 • 119

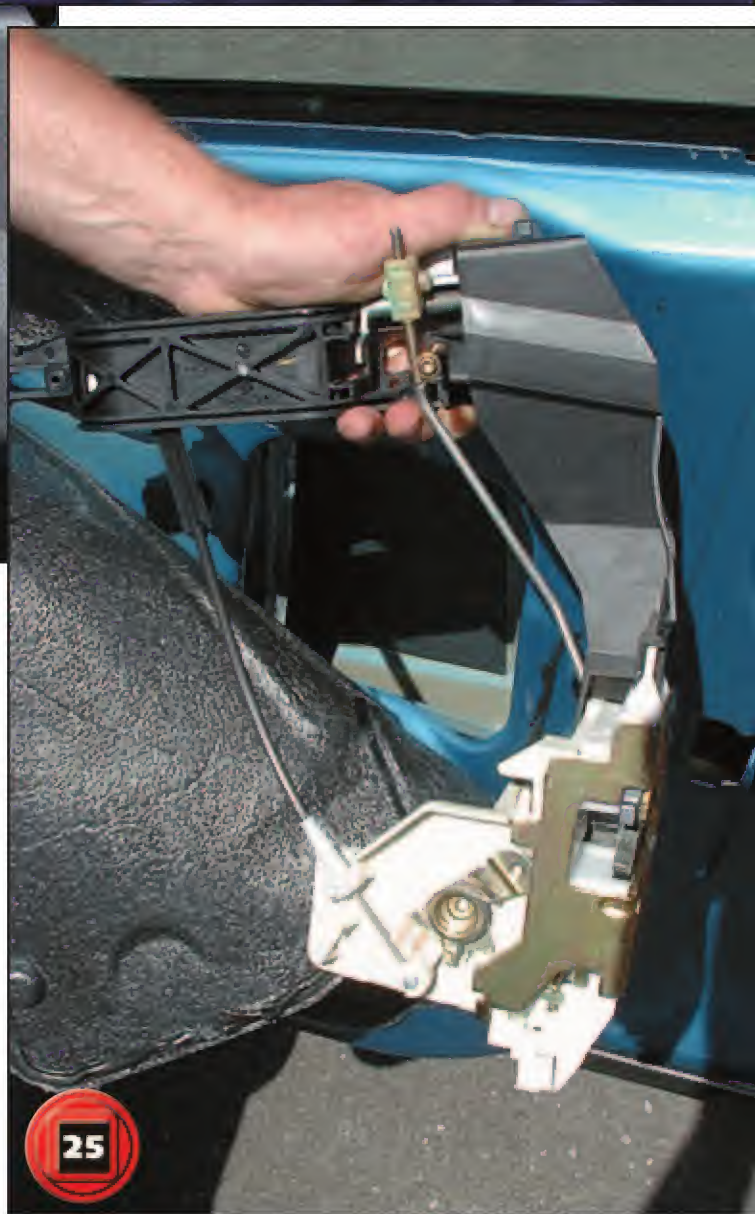




**A look at the T-15 Torx screw from the other side.**



**Remove the latch's T-30 Torx screws and remove the entire lock and latch assembly.**

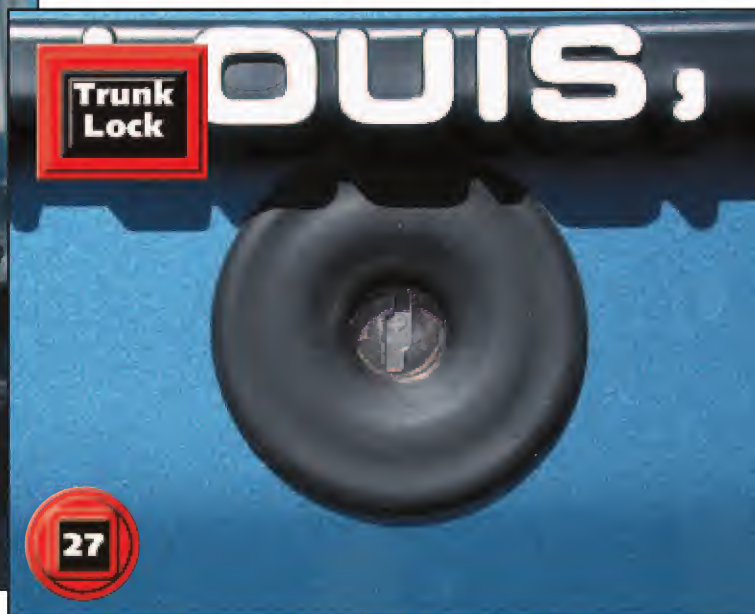


**The linkage is quite well guarded.**



**With the handle set removed, the lock can be removed. Use great care in its removal because the lock is an integral part of the handle.**

120 • The National Locksmith



**Despite the initial appearance, the lock must be moved from inside the trunk.**





**To open the trunk, either pick the lock or use the deck lid release found inside the vehicle.**



**Use a trim tool to remove the trim buttons and trim panel.**



**Remove the two T-30 Torx screws that hold the trunk lock to the lid.**

# 15 Minute Safe Opening



This book deals exclusively with round head lift out doors. Shows five ways to open a Major; three ways to find the Dog Pin on a Major; four ways to open a Star; four ways to open a LaGard style round head.

[CLICK HERE TO LEARN MORE](#)



#JJ - 1



# Wafer Lock Reading



Easy to learn.  
No Codes needed.

CLICK HERE TO LEARN MORE



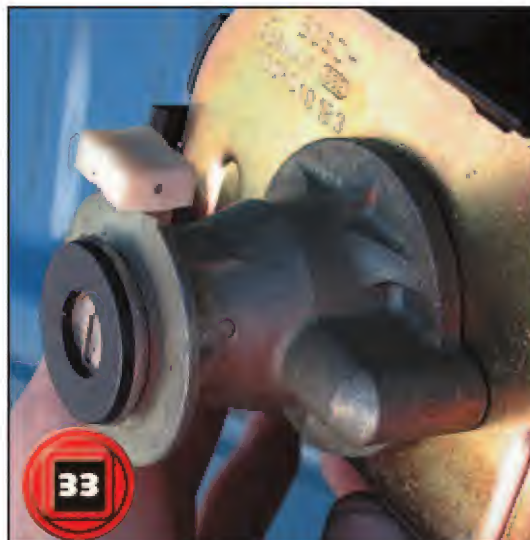
#WLR - 1



With the latch removed, the cable can be disconnected and a new latch installed.



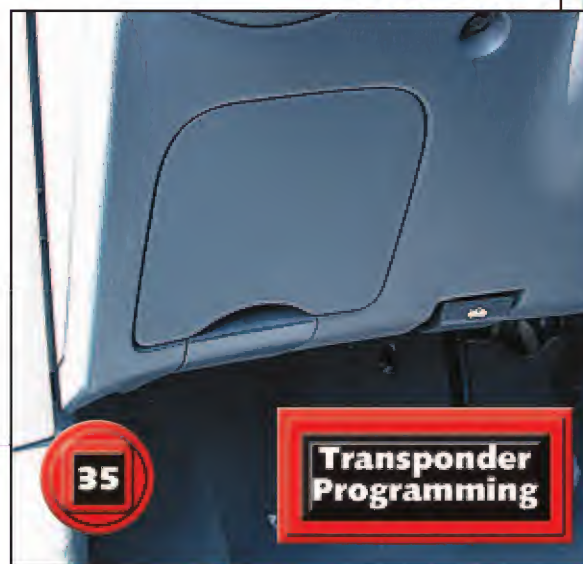
The deck lock bezel snaps into the deck or trunk lid.



The lock is an integral part of the latch mechanism.



Because the whole unit is press fit together, it should be replaced and not serviced.



If it is necessary to program a new or duplicate using Ford's NGS unit, simply pull down the panel covering the Data Link Connector.



Plug in the NGS unit and follow the on screen instructions.

TRL



# 2000 Buick LeSabre

by Tony Vigil



**1. The new 2000 Buick LeSabre.**

The new 2000 Buick LeSabre is proving to be a very popular car with American families as well as with car rental companies everywhere. (See photograph 1.) Built on the new GM 'G' body platform, this car has a solid ride and feel that people seem to love.

The G chassis is an all new design, which GM is using in several of their models, from the Buick LeSabre and Park Avenue to the Cadillac Seville and Deville and the Pontiac Bonneville. It is important to note, however, that even though these vehicles share the same chassis and other components, they have completely different doors and door lock mechanisms. This, of course, means that even though these vehicles may look similar, security professionals must approach each of these vehicles individually when performing auto openings.

Unlocking the LeSabre is accomplished with ease using the High Tech Tools #23 horizontal linkage tool. As it turns out, this particular tool unlocks a large number of GM cars, but ironically, not the sister cars to the LeSabre.

To unlock this vehicle, insert the #23 tool with the tip pointing towards the front of the car. (See photograph 2.) Lower the tool approximately half way down into the door. The use of a good wedge here is a must. For this demonstration, we are using the wedge along with a piece of Lexan, which High Tech Tools calls a strip saver. This



**2. Insert the #23 High Tech tool.**



**3. The tool is shown in the working position.**



**4. Twist the tool handle towards you.**



**5. Remove the door handle cover.**





# LeSabre

inexpensive yet effective little tool makes it easy to insert the wedge without rolling over or cutting the automobile's weather-strip. The tool is shown in the working position in *photograph 3*.

**B**y lowering the tool into the door, then twisting the tool handle towards you, it will bind the linkage as shown in *photograph 4*. The tool rests directly at the bend on the bottom linkage, making movement of the linkage easy. With the tool locked on the linkage, move the tip of the tool towards the front of the car, and the door will unlock in a matter of seconds.

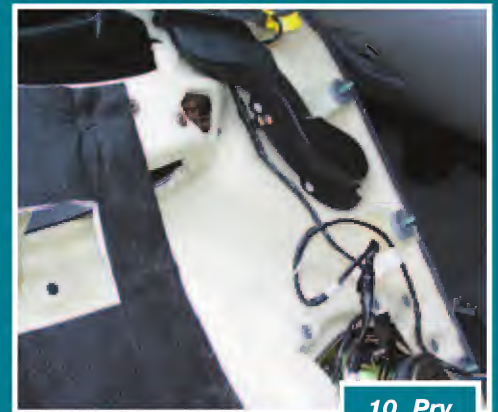
In case you need to service the locks on this vehicle, or if your neighborhood police department knocked off the linkage before calling in a professional locksmith, you may need to remove the door panel to the LeSabre. Panel removal instructions are as follows:

First, remove the door handle cover shown in *photograph 5*. A flat head screwdriver should do the trick. Next, carefully remove the window switch panel, and manually disconnect the wires. (See *photograph 6*.)

Then remove the speaker from the upper front part of the door shown in *photograph 7*. The speaker pries out relatively easily, but do not jerk the speaker out of place as it is connected to a bundle of wires.

Finally, remove the light cover at the edge of the door panel (see *photograph 8*) to clear the way to remove the lone screw behind that cover. (See *photograph 9*.)

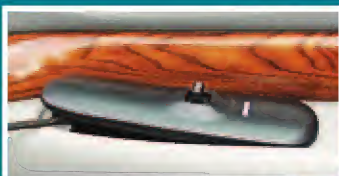
Once the screw is removed, grab the door panel on both sides and pry it off by pulling out and then up to remove. (See *photograph 10*.) **TNL**



**10. Pry the panel off by pulling out and then up to remove.**



**9. The lone screw behind that cover.**



**6. Remove the window switch panel.**



**7. Remove the speaker.**



**8. Remove the light cover at the edge of the door.**



# KEY CODES

## New GM HUF Series H0001-H3988, Part 1

The HPC 1200CMB and  
1200PCH code cards for  
this code series are  
between pages 94-97.

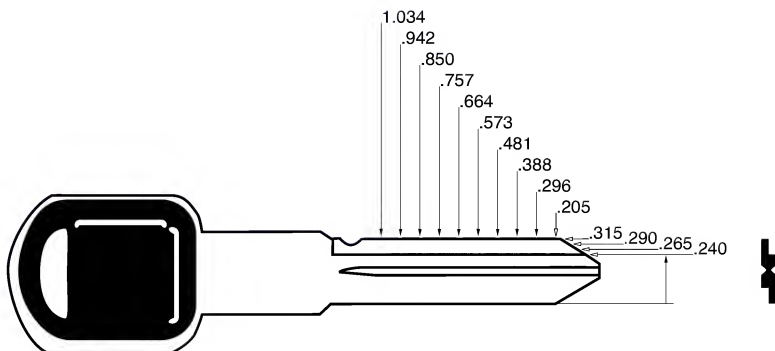
General Motors is introducing a new 10-cut code series for the year 2000 vehicles. The code series is being split between three lock manufacturers:

Huf, Ortec and Strattec. The letter prefix designation of the code will determine which manufacturer produced the lock. For instance, Huf codes will have an "H" prefix.

Ortec will have an "O" code prefix and Strattec will have an "S" code prefix.

From the information we have gathered, Huf will be supplying locks for the Buick Park Avenue, Catera, Cadillac Seville, Cadillac Eldorado, Cadillac DeVille and the Innovee. Ortec will supply locks for the Buick LeSabre, Oldsmobile 88, Pontiac Bonneville and the Anthem. Strattec will supply codes for all other GM models.

All previous 10-cut key blank and spacing and depth information remains the same. The only thing new is the code series.



As with the original 10-cut code series, this is a very large series addition. The portion of the code series we are presenting here is the HUF series identified by the letter "H" prefix. The Strattec "S" prefix series and Ortec "O" prefix series was previously published.

**Manufacturer:** Huf for General Motors

**Code Series:** H0001-H3988

**Key Blanks:**

**BWD:** M95DB or M95DBL

**Curtis:** B-82 or B-86

**Ilco:** P1102

**Ilco EZ:** B82

**Jet:** B82 or B82NP

**Silca:** GM39

**Strattec:** 597500 (88 & 75 Grove)

1 - 1.034

2 - .942

3 - .850

4 - .757

5 - .664

6 - .573

7 - .481

8 - .388

9 - .296

10 - .205

**Depths:**

1 = .315

2 = .290

3 = .265

4 = .240

**HPC 1200CMB**

**Code Card:** CF215

**Jaw:** A

**Cutter:** CW-1011

**Gauge From:** Tip

**HPC 1200PCH (Punch):**

**PCH Card:** PF215

**Punch:** PCH-1011

**Jaw:** A

**Silca UnoCode**

**Card Number:** 567

**HPC CodeMax**

**DSD #:** 259

**Jaw:** A

**Cutter:** CW-1011

**Curtis No. 15 Code**

**Cutter:**

**Cam-Set:** GM-6

**Number of**

**Cuts:** 10

**M.A.C.S.:** 2

**Key**

**Gauged:**

Tip

**Center of**

**First Cut:**

1.034

**Cut to Cut**

**Spacings:**

.092

**Cut Depth**

**Increment**

**s:** .025

**Spacings:**

0001	2342112422	0023	3442113113	0045	3421133134	0067	2342232313	0089	2313231312	0111	3342331123
0002	1124311233	0024	2134231322	0046	3431244244	0068	2242134342	0090	3422244244	0112	2123312432
0003	3321211343	0025	3242124342	0047	2133312433	0069	2123311134	0091	3242231213	0113	3212333242
0004	3212313422	0026	2213311132	0048	3122113134	0070	2133132312	0092	3132213242	0114	2131112312
0005	3121334442	0027	1343132433	0049	1323343312	0071	3121322212	0093	3111133312	0115	1324224234
0006	3124344222	0028	1311332423	0050	3123121343	0072	1134313324	0094	3121132132	0116	1233123134
0007	1232123232	0029	1134312334	0051	2434311333	0073	2423132213	0095	1133343322	0117	3442342333
0008	2312334232	0030	1231224224	0052	2334331244	0074	1213331313	0096	2234343343	0118	1133222423
0009	3421333422	0031	2312213324	0053	2234343213	0075	3422113122	0097	3313342442	0119	2234312433
0010	2313343134	0032	3212242124	0054	2311342313	0076	3234331112	0098	2243213332	0120	3131344222
0011	2213123124	0033	2124311133	0055	3211344223	0077	3131342343	0099	2124324333	0121	1343121312
0012	1342343133	0034	3213232434	0056	1311242232	0078	3211244343	0100	1323321242	0122	3133122422
0013	1311231344	0035	3122322312	0057	3111343113	0079	1244332422	0101	1232313332	0123	3112112424
0014	1322132324	0036	2433342332	0058	1312233312	0080	2334243123	0102	1244212342	0124	2422342123
0015	2421312444	0037	2334242212	0059	1213221212	0081	1123121132	0103	2331332312	0125	2312333112
0016	3313124222	0038	2421212443	0060	3421313134	0082	2342323233	0104	3234224212	0126	2331231244
0017	2242312313	0039	3312213224	0061	3234213133	0083	2242331312	0105	2134342312	0127	3231322342
0018	3321313342	0040	1342242243	0062	3311333442	0084	2124213343	0106	3242344313	0128	1323134244
0019	3212344332	0041	3132232342	0063	1334324223	0085	1323134213	0107	3132312233	0129	3122244423
0020	3122213243	0042	1343232212	0064	2433312243	0086	1334213422	0108	3111323423	0130	1324333442
0021	2433244212	0043	1312131133	0065	1233224224	0087	2433121342	0109	2421343132	0131	1233311223
0022	2443343123	0044	1134332323	0066	2434331234	0088	3421211324	0110	2432223243	0132	1113324222



## New GM HUF Series H0001-H3988, Part 1

0133	3313113123	0199	3312242424	0265	2134343423	0331	2213221323
0134	3342211324	0200	1342311312	0266	3243133132	0332	1343123424
0135	2113343242	0201	3132242442	0267	3132322313	0333	1311324233
0136	3111212132	0202	1343242242	0268	3111333134	0334	1322232132
0137	1312111342	0203	1312132424	0269	2422112423	0335	2421333122
0138	3112242334	0204	1134333342	0270	2432313234	0336	3313223442
0139	2423211132	0205	3421211342	0271	3342344233	0337	2242343432
0140	2313132242	0206	3431322322	0272	2123323122	0338	3321344234
0141	2134223132	0207	2133322133	0273	3212342343	0339	3213224213
0142	2231342134	0208	3122124233	0274	2131123123	0340	3122313424
0143	3131242322	0209	1324213432	0275	1324233232	0341	2433334243
0144	1232321313	0210	3123124232	0276	1233134242	0342	2444232242
0145	2434232324	0211	2434312242	0277	1113221132	0343	3442322322
0146	1234212332	0212	2334342323	0278	1133233342	0344	2134332322
0147	1123134233	0213	2234343424	0279	2234322133	0345	3242331122
0148	3313242113	0214	2312112342	0280	3132131344	0346	2213342132
0149	3212234332	0215	3212113132	0281	1343131113	0347	1343233242
0150	3231131324	0216	1311311222	0282	3133212123	0348	1312132323
0151	1322324332	0217	3111344343	0283	3112133122	0349	1134332332
0152	2421343442	0218	1312242233	0284	2423113232	0350	1232121232
0153	1213131212	0219	1213311234	0285	2312334423	0351	2312342132
0154	2423332242	0220	3421331132	0286	2331242323	0352	3212334223
0155	2313243124	0221	3234231113	0287	3231331122	0353	2131113313
0156	2134331233	0222	3311342422	0288	1323221243	0354	3221113132
0157	1342234213	0223	1342113422	0289	3122313123	0355	3123132132
0158	2113312424	0224	2433313242	0290	1324343243	0356	2434322243
0159	2444313343	0225	1233242224	0291	1233312343	0357	2342221342
0160	3442342432	0226	2434333124	0292	1113331323	0358	2421333313
0161	2342123112	0227	2342242323	0293	3313124242	0359	3313231124
0162	1124312333	0228	2242243132	0294	3342213212	0360	1343134312
0163	3321213224	0229	2123322132	0295	2113343422	0361	3133242322
0164	3212331112	0230	2133212432	0296	3111224423	0362	1344213423
0165	3122122424	0231	3121323424	0297	1312121242	0363	1313113424
0166	3131122422	0232	1134323134	0298	3112313122	0364	1213331324
0167	1232132342	0233	2423133342	0299	2423223243	0365	3422133133
0168	2312342112	0234	1213332323	0300	2313212434	0366	1113233313
0169	3421342433	0235	3422131333	0301	2134242212	0367	2134343232
0170	2321121324	0236	3234331222	0302	2234212432	0368	3123113133
0171	2213131242	0237	3131344332	0303	3131244223	0369	1331243422
0172	1343111313	0238	3211313223	0304	1232324242	0370	3123334442
0173	1311243242	0239	1244333423	0305	2434242134	0371	2442234242
0174	1322134223	0240	2334311334	0306	1234233423	0372	2343123113
0175	2421313434	0241	1123123312	0307	1123243322	0373	2243133313
0176	3313212112	0242	2342323442	0308	3313334212	0374	2313113243
0177	2242323443	0243	2242333312	0309	3212242344	0375	3212344224
0178	3321331124	0244	2124224244	0310	3231212113	0376	1312233424
0179	3213122342	0245	1323212232	0311	1322332423	0377	3112343123
0180	3122232332	0246	1334224222	0312	2422213313	0378	1321121242
0181	2433313112	0247	2433133112	0313	1213132422	0379	1223312342
0182	2443344212	0248	3421213223	0314	2423333243	0380	3422344243
0183	3442131333	0249	2313233132	0315	2313311113	0381	3243124343
0184	2134243134	0250	3422312213	0316	2134332324	0382	3313242432
0185	3242133232	0251	3242234342	0317	1342243213	0383	1343212313
0186	2213313233	0252	3132223342	0318	2113322124	0384	2434343123
0187	1343212212	0253	3111223312	0319	2444333134	0385	1242312343
0188	1311333424	0254	3121211213	0320	1113231333	0386	2443112424
0189	1134321323	0255	1134221212	0321	2342134343	0387	2343332243
0190	1231242224	0256	2242112342	0322	1124313323	0388	2243342113
0191	2312232312	0257	3321113122	0323	3321222312	0389	2131131234
0192	3212242434	0258	2243223133	0324	3212331334	0390	2134332434
0193	2124321213	0259	2124331322	0325	3122124424	0391	3122343122
0194	3213244343	0260	1323324232	0326	3131131323	0392	1223123232
0195	3122331334	0261	1232323212	0327	1232134232	0393	2424343443
0196	2433343443	0262	1244222442	0328	2312343212	0394	1224321343
0197	2334311112	0263	2331342322	0329	3422124243	0395	3424223423
0198	2421231242	0264	3234244232	0330	2321131244	0396	3243331213

## The National Locksmith Magazine Subscription



This is THE source for automotive technology, safe opening techniques, electronic security and much, much more.

**CLICK HERE TO LEARN MORE**



#SUB - 1,2,3,4,5,6



# New GM HUF Series

## H0001-H3988, Part 1

0397	3133242344	0463	3133211243	0529	1332231332	0595	1333322123	0661	2443311333	0727	2444243112
0398	3212333123	0464	1234343324	0530	3124323313	0596	1243212332	0662	3113124424	0728	1113311233
0399	1312213424	0465	2442331343	0531	2443133122	0597	1132123312	0663	1132132343	0729	2342233123
0400	2343131244	0466	1243212242	0532	2343334342	0598	1223131213	0664	2231312322	0730	1124324244
0401	1131324244	0467	1132123242	0533	2243342313	0599	2244234224	0665	3311344233	0731	3321244242
0402	2344243122	0468	3324333424	0534	2313312442	0600	3134324443	0666	2234324212	0732	3213113124
0403	2244313444	0469	3213342344	0535	3213313223	0601	2113224242	0667	2113334343	0733	3122231232
0404	2131331322	0470	3242211312	0536	1313224232	0602	3211323422	0668	1322121243	0734	3131232442
0405	1331132322	0471	1324343133	0537	3113242133	0603	3121122423	0669	1224333313	0735	1232331332
0406	1343113342	0472	2424242324	0538	1321323222	0604	2431343443	0670	1242323213	0736	2313243434
0407	2434322432	0473	1223333134	0539	1224324322	0605	2324234232	0671	2324243434	0737	3422334332
0408	3422344234	0474	2431342332	0540	3424231134	0606	2343212442	0672	3224331113	0738	2321331244
0409	2321342132	0475	2324231244	0541	3243342422	0607	3244231123	0673	2133234223	0739	2213343423
0410	3424331124	0476	2224313233	0542	3321244222	0608	1332311313	0674	3231342443	0740	1343243212
0411	3244312222	0477	1343324342	0543	1343312424	0609	3124332212	0675	3131232343	0741	1312134222
0412	3134213242	0478	2124323433	0544	2442242333	0610	1334243212	0676	2443343433	0742	1323223113
0413	3112331232	0479	3112312112	0545	1243111312	0611	1243331332	0677	2344332312	0743	2423133113
0414	3122242443	0480	1131213443	0546	2443313113	0612	1132324243	0678	2431132232	0744	3321313212
0415	1213323134	0481	2343342323	0547	2344243443	0613	3331211322	0679	3331223424	0745	2243334224
0416	2243324212	0482	1132321323	0548	2244323443	0614	3423113112	0680	2113232212	0746	3324344244
0417	3324334342	0483	3331124244	0549	2131334332	0615	2132123124	0681	3211332132	0747	3221131343
0418	2244343432	0484	3221232433	0550	2213223132	0616	3113322312	0682	2123243424	0748	3123212122
0419	2132212424	0485	3123223342	0551	3123212124	0617	1321342234	0683	1322332313	0749	2434323343
0420	1331322123	0486	3132244422	0552	1223321313	0618	3121232443	0684	1231243243	0750	3111232242
0421	1234322112	0487	1234213434	0553	2431313242	0619	2432212133	0685	3431213213	0751	1123123242
0422	1311343324	0488	2321234233	0554	1231131212	0620	2324332433	0686	1131342222	0752	2213243134
0423	2342312312	0489	3424231132	0555	3424333342	0621	2231123122	0687	2231213342	0753	3243313213
0424	3243242122	0490	2324323442	0556	3244331212	0622	2243332433	0688	3124333132	0754	2224331312
0425	2224322134	0491	2231121313	0557	3134231222	0623	3134232322	0689	1334322122	0755	1344212422
0426	3244344232	0492	1344224243	0558	3213224422	0624	1243113442	0690	3132133124	0756	1312343332
0427	3134244224	0493	1313131224	0559	1313131134	0625	2443313432	0691	2444343124	0757	1213324322
0428	3112344212	0494	1324221242	0560	2343331244	0626	1244243342	0692	2421243443	0758	1232333242
0429	2423343132	0495	2423333122	0561	1132213442	0627	1133134234	0693	2311332433	0759	2313322443
0430	2434213312	0496	3324232424	0562	2344343132	0628	3331322242	0694	2324244442	0760	3213331113
0431	3422232423	0497	2244323243	0563	2311134332	0629	3221334313	0695	3224331344	0761	2131342124
0432	2131223124	0498	3331244313	0564	2132311323	0630	3243244342	0696	1322213432	0762	3221342444
0433	3221234332	0499	3221331222	0565	1331334212	0631	1331342242	0697	3121333232	0763	3123334242
0434	2132323113	0500	3123322213	0566	1343224242	0632	2431323432	0698	1323323222	0764	2442231234
0435	1332123132	0501	2442134423	0567	2442122442	0633	1231132332	0699	1232324323	0765	2342334422
0436	1242231343	0502	3112131313	0568	3424211323	0634	2432334242	0700	3442213222	0766	2423121332
0437	1124331323	0503	1124323133	0569	2324311122	0635	2331213323	0701	3312131342	0767	3321312213
0438	1213121213	0504	2224224313	0570	3431213222	0636	2231311332	0702	3331244243	0768	1343323123
0439	2243132442	0505	3244331133	0571	3311133242	0637	2113112242	0703	2113311133	0769	3134234313
0440	3133312122	0506	2231243433	0572	3134323422	0638	2131242244	0704	2444232323	0770	2113123424
0441	1344232213	0507	1344342213	0573	3113131312	0639	3113132212	0705	1311311244	0771	1321113423
0442	3134334424	0508	1313332423	0574	3123122423	0640	1132212322	0706	3111344422	0772	1223311242
0443	3113212132	0509	1223134234	0575	1223134232	0641	2344342324	0707	2422334234	0773	3423122242
0444	2424324433	0510	1233311243	0576	2244312313	0642	1133321342	0708	2312324424	0774	1123132343
0445	2321133424	0511	2321123113	0577	3331232424	0643	3342133134	0709	2133313322	0775	2213312324
0446	2334344442	0512	3221124422	0578	2311324212	0644	3224322342	0710	2231312434	0776	3123224442
0447	3242334213	0513	2132243424	0579	2132342134	0645	3124232343	0711	3131124233	0777	1332131232
0448	1331132432	0514	3224313344	0580	1332311212	0646	3133332212	0712	1232132423	0778	3124313424
0449	3123331232	0515	3124232332	0581	1242324324	0647	1242332343	0713	2433331242	0779	2442344343
0450	1332322122	0516	2442313343	0582	1312243232	0648	2324312442	0714	1233323213	0780	2343334234
0451	1242333133	0517	2343233124	0583	2343243123	0649	3431222242	0715	1113342222	0781	2243342133
0452	1131242223	0518	2423231242	0584	3244331122	0650	2331324423	0716	3313213232	0782	2313324423
0453	3324211313	0519	3321342423	0585	2231242313	0651	2231343432	0717	3212131323	0783	3213331223
0454	3421334313	0520	1344212312	0586	3311334342	0652	2113231323	0718	3224342344	0784	1313242232
0455	2124343422	0521	3134322232	0587	3211224213	0653	1321223113	0719	1322233243	0785	3113313123
0456	3112333124	0522	2113221313	0588	3113323322	0654	1331321243	0720	2421342122	0786	1321332424
0457	1313333424	0523	1321212232	0589	2431212134	0655	2431233122	0721	1134342223	0787	1224331313
0458	3113323423	0524	1223332342	0590	2434343433	0656	3331342424	0722	2423324432	0788	3424232423
0459	2431233113	0525	3423232422	0591	3423234442	0657	2312113312	0723	2313234232	0789	3243342444
0460	2321324424	0526	1123321332	0592	2132312432	0658	3421113112	0724	2134324343	0790	3321322324
0461	2213342312	0527	2213331233	0593	3224323332	0659	3231242433	0725	1342232213	0791	1343334213
0462	2242324213	0528	3123312233	0594	2133233134	0660	3124342343	0726	2113312332	0792	2442324442



## New GM HUF Series H0001-H3988, Part 1

0793	1243132423	0859	1311224232	0925	2431112423	0991	2434324434
0794	2443333124	0860	1134213442	0926	2434332242	0992	3423223422
0795	2344323312	0861	3342213223	0927	3423124312	0993	2324212434
0796	2244334232	0862	3424331133	0928	2132134313	0994	3424342434
0797	2132134212	0863	2133112312	0929	3224242123	0995	3244334332
0798	2213323234	0864	3121224424	0930	2133131113	0996	3134242343
0799	3123232443	0865	1323112132	0931	1333221312	0997	3112343433
0800	1223333422	0866	3122242133	0932	1243121232	0998	3122333123
0801	2431344424	0867	2433323432	0933	1131332342	0999	1223111242
0802	1231233422	0868	2334212442	0934	1213342223	1000	2244243132
0803	3431211323	0869	2234243432	0935	2243343424	1001	3331231212
0804	3311124242	0870	2311221324	0936	3134331223	1002	2311323242
0805	3134244422	0871	3211244224	0937	2113242242	1003	2132334313
0806	3213331344	0872	1244331333	0938	3211334343	1004	1332321242
0807	1313311244	0873	3111234244	0939	3121134424	1005	1242332422
0808	2344224343	0874	1312212342	0940	2432132213	1006	1312243342
0809	1133111242	0875	1213132332	0941	2324313443	1007	2343313244
0810	2421242213	0876	3421242423	0942	2343311112	1008	3244342423
0811	2311322443	0877	3231344232	0943	3244333423	1009	2231322134
0812	2132332434	0878	3311312223	0944	1333243422	1010	3312124342
0813	1332234212	0879	1334323224	0945	3131211212	1011	3211234313
0814	1343324223	0880	2433324433	0946	1342223123	1012	3113342334
0815	2442312243	0881	1233324234	0947	1244324324	1013	2431311343
0816	3424313133	0882	2434344423	0948	1133224223	1014	2442124442
0817	2331113243	0883	2342322434	0949	3331344244	1015	3424213213
0818	3432223422	0884	2242332443	0950	3424222312	1016	2132322132
0819	3311244234	0885	2124223124	0951	2132332322	1017	3224334422
0820	32111133124	0886	2133312323	0952	3121121343	1018	2133243432
0821	3113322422	0887	3122132212	0953	1322242234	1019	1334212313
0822	3123232342	0888	1213134224	0954	3122133123	1020	1243243242
0823	1223342224	0889	2423334233	0955	2433234222	1021	1132243313
0824	2311221322	0890	1223233133	0956	2331331243	1022	1223221213
0825	3342211342	0891	3422342434	0957	2234224312	1023	2244324422
0826	2312243442	0892	3242342443	0958	2311131122	1024	3211131344
0827	2133242312	0893	3132313423	0959	3211232322	1025	2113321213
0828	1333334212	0894	3212231223	0960	1244321312	1026	3212122132
0829	1243213434	0895	1311333312	0961	3111124442	1027	3121242334
0830	1313312344	0896	2342242444	0962	1311342233	1028	2432213112
0831	2344233123	0897	1124342222	0963	1134324243	1029	2324334424
0832	3311223242	0898	2343343434	0964	3421122312	1030	2343323434
0833	2234213332	0899	2243343433	0965	3231244233	1031	3244342443
0834	3312313342	0900	2131224244	0966	3311212112	1032	1333312423
0835	3211333113	0901	1324343342	0967	1333342242	1033	3131211232
0836	3121131322	0902	1342343243	0968	2432344423	1034	1342224243
0837	2432121332	0903	2434313113	0969	1232333422	1035	1244333133
0838	2442313112	0904	3422342333	0970	2434313234	1036	1133242223
0839	3424323323	0905	2321333112	0971	2342243122	1037	3342124244
0840	2132343423	0906	3424342333	0972	2242311332	1038	3424234423
0841	3231224422	0907	3244331342	0973	2123323232	1039	2132342213
0842	2133343424	0908	3134231224	0974	2133243133	1040	3121212124
0843	1334323123	0909	3112333232	0975	3121334233	1041	1322343133
0844	1244221232	0910	3122323313	0976	1134331324	1042	3122213124
0845	1133121212	0911	1213333342	0977	2423242332	1043	2433242333
0846	1223324323	0912	2243343213	0978	1223123313	1044	2331342124
0847	2311124212	0913	3331211313	0979	3422244242	1045	2234234223
0848	3211231222	0914	2311232232	0980	3242232432	1046	2311132442
0849	2113342133	0915	2132324343	0981	3132223232	1047	3211232434
0850	3212312122	0916	1332134213	0982	3211343112	1048	1244322113
0851	3121333113	0917	1242321312	0983	1311312344	1049	3111234312
0852	2432342113	0918	1312222442	0984	2342244424	1050	1312221232
0853	2331221342	0919	2343213313	0985	1124343313	1051	1213231334
0854	2344234234	0920	3244231213	0986	2343344424	1052	3421322323
0855	3311223442	0921	2231133442	0987	2244223134	1053	3234244342
0856	1334233242	0922	3311242122	0988	2131233134	1054	3311344312
0857	3131322343	0923	3134344342	0989	1331121243	1055	1342131233
0858	1342342242	0924	3113312234	0990	1343112242	1056	2433332322

## Modern Safe Opening



This book is a step-by-step How-To course in safe penetration. Opening safes is one of the most profitable aspects of the locksmithing business.

[CLICK HERE TO LEARN MORE](#)



#MSO - 1



## New GM HUF Series H0001-H3988, Part 1

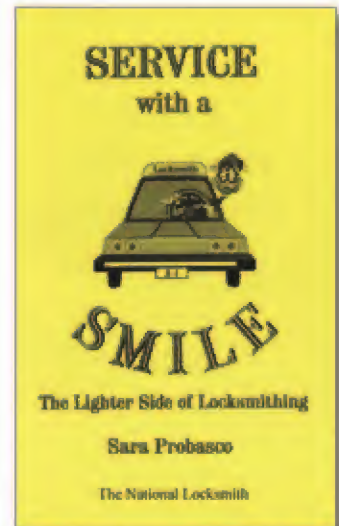
1057	1233324324	1123	1312224233	1189	2434342113	1255	3112211213	1321	1313324332	1387	1332323224
1058	2442121342	1124	1213313313	1190	3111324442	1256	1124324312	1322	3113322424	1388	1242333423
1059	2342323244	1125	3421333132	1191	1123324313	1257	2343322433	1323	2431133422	1389	1131321342
1060	2243124212	1126	3442133133	1192	2213332322	1258	1132134233	1324	2321322442	1390	1213324243
1061	2124242244	1127	2134313433	1193	3244213134	1259	3324342442	1325	2213332434	1391	2243324344
1062	2133324344	1128	3122343113	1194	2231131123	1260	3221213234	1326	2242313312	1392	3134242442
1063	3122213122	1129	1331221242	1195	1344242243	1261	3123213123	1327	3133122132	1393	2113132433
1064	1213312334	1130	3123334312	1196	1313134243	1262	3132242132	1328	1234342224	1394	3211242343
1065	2423343442	1131	2442232323	1197	1223121212	1263	1234212242	1329	2442343124	1395	3113343113
1066	1223323212	1132	2343121324	1198	1233213433	1264	2321221332	1330	1243233423	1396	2431331242
1067	3423231133	1133	2243134332	1199	2313342313	1265	3424244312	1331	1132243322	1397	2324213323
1068	3243224212	1134	2313121323	1200	3213332132	1266	2324342322	1332	3331113123	1398	2343213322
1069	3132334424	1135	3213131324	1201	2132231322	1267	2231212433	1333	3221231223	1399	3244244332
1070	3212312124	1136	1312323132	1202	3224312123	1268	1344323122	1334	3242344232	1400	1332332424
1071	1312123422	1137	3113124224	1203	3124213243	1269	1313231344	1335	1331221312	1401	3124334423
1072	2342331243	1138	1321134222	1204	2442334243	1270	1324243343	1336	2431113242	1402	1334342212
1073	1131243323	1139	1223343322	1205	2343322213	1271	2424231243	1337	1224332323	1403	1244224233
1074	2344242213	1140	3423331132	1206	2423313434	1272	3324344233	1338	2432213312	1404	1133123313
1075	2244312322	1141	3243312223	1207	3324222313	1273	2311231312	1339	2324342124	1405	3331234422
1076	2131324333	1142	3321124243	1208	1344234213	1274	3342234422	1340	2231131242	1406	3423312212
1077	1331132313	1143	1343243423	1209	3134343112	1275	3224344313	1341	1344243213	1407	2132313433
1078	1343131124	1144	2442234244	1210	2113311322	1276	3124322422	1342	2131123442	1408	3113343122
1079	2434334312	1145	1242343323	1211	1321323132	1277	2443131313	1343	3113113134	1409	1322212343
1080	3423234424	1146	2443312242	1212	1224313313	1278	3112334233	1344	1132121132	1410	3121334244
1081	2324311113	1147	2344311342	1213	3424244222	1279	1131331323	1345	2344324432	1411	2423113242
1082	3431231132	1148	2244333112	1214	1131123243	1280	2231224313	1346	1133321324	1412	2331232313
1083	3311213232	1149	2132132434	1215	2224323234	1281	3312122313	1347	3342131334	1413	2231323443
1084	3134332132	1150	2213324343	1216	3124242342	1282	2234332442	1348	3224312224	1414	2244333312
1085	3113133312	1151	3123242132	1217	1333324224	1283	2113342212	1349	3124231232	1415	3211134442
1086	3123124423	1152	1224212324	1218	3131242342	1284	1322132432	1350	3133331224	1416	1244233424
1087	1223231342	1153	2432124223	1219	2443344423	1285	1231121213	1351	1242333313	1417	2444344213
1088	2244332443	1154	1231243324	1220	2344343442	1286	1242333243	1352	2324324423	1418	1312322113
1089	3331342442	1155	3431234423	1221	2311223133	1287	2324323233	1353	3431312134	1419	1223131222
1090	2312123122	1156	3311231122	1222	2321342323	1288	3231113124	1354	2334221343	1420	3422323323
1091	2133113313	1157	3134342342	1223	3221344224	1289	2133331322	1355	2234311324	1421	3242244332
1092	1332343312	1158	3221133132	1224	1321343312	1290	3234322332	1356	2113324223	1422	3313222342
1093	1242342232	1159	1321123422	1225	3121313122	1291	3131333242	1357	1321343332	1423	1343223122
1094	1313132324	1160	2344313243	1226	1323231332	1292	2444331343	1358	1332134244	1424	2442131312
1095	2343344442	1161	1133243323	1227	1232231342	1293	2421234234	1359	2432113232	1425	1243123133
1096	3311222342	1162	2421342324	1228	3432232422	1294	2431324433	1360	3342242423	1426	2443323343
1097	2234242312	1163	2312221332	1229	3311331123	1295	3342122312	1361	2312323243	1427	2344312444
1098	3312331342	1164	2133224312	1230	3331213212	1296	2113324333	1362	3421331134	1428	2244343212
1099	3211344342	1165	1333321243	1231	2113223122	1297	3212213234	1363	3234313222	1429	2132231324
1100	3121223313	1166	1344311134	1232	2444213113	1298	2124231323	1364	3131332212	1430	2224212433
1101	2432134422	1167	2443232324	1233	1311131224	1299	1323233442	1365	2444334243	1431	3123342342
1102	2442332232	1168	3431242422	1234	3111342112	1300	1232311242	1366	3121112442	1432	1224332343
1103	3424342432	1169	2331343134	1235	2422231243	1301	3432342433	1367	1133324242	1433	2432242332
1104	2133123442	1170	1113312333	1236	2312312443	1302	1132324313	1368	2234342122	1434	1232221213
1105	3231313344	1171	3312331212	1237	2133311324	1303	2234311124	1369	3313342424	1435	3432231133
1106	2134311323	1172	3212131343	1238	2231313312	1304	3131334423	1370	2243221324	1436	3312133232
1107	1342132313	1173	3121312112	1239	3131211243	1305	1343221313	1371	2124331333	1437	3211313124
1108	1244342232	1174	3124322343	1240	1232233133	1306	3133313224	1372	1323332424	1438	3224212113
1109	1133321322	1175	1231222424	1241	2434212133	1307	3112313432	1373	1232342224	1439	1322111312
1110	1224331324	1176	2312134342	1242	1233342232	1308	2423243113	1374	1311113442	1440	2421244424
1111	2311334224	1177	3421234424	1243	1123212322	1309	2313232232	1375	2334322213	1441	1134324313
1112	3212124422	1178	2313334442	1244	3313342422	1310	2334212213	1376	3242244233	1442	2423213112
1113	2123342244	1179	2213121322	1245	3212312232	1311	3234313213	1377	2213334223	1443	2313133423
1114	3213124234	1180	1343212423	1246	3231234342	1312	1324232132	1378	3244232432	1444	2134321212
1115	3122312234	1181	1312113423	1247	1322343342	1313	3123134424	1379	3133344222	1445	1342321232
1116	2433343124	1182	1322342233	1248	2422332243	1314	1331332432	1380	3112323424	1446	2113324342
1117	2334313244	1183	2422313442	1249	1213313324	1315	1234331332	1381	2423331234	1447	3111122442
1118	2421242444	1184	3321242112	1250	2424213322	1316	1124324222	1382	2434234243	1448	1113323133
1119	3312323234	1185	2243323242	1251	2321123313	1317	3321242424	1383	3422244312	1449	2342313243
1120	1342332432	1186	3324342424	1252	2213131123	1318	3421234442	1384	2131243133	1450	1131212323
1121	3132324443	1187	3213344223	1253	1343213422	1319	2124324342	1385	3221313132	1451	3321331212
1122	1343322124	1188	3123131322	1254	2123332324	1320	3112322212	1386	2132342244	1452	3213213132



## New GM HUF Series H0001-H3988, Part 1

1453	3122344422	1519	3212232433	1585	2242124213	1651	2442244212
1454	3132133243	1520	1312324232	1586	3321342434	1652	2343221343
1455	1233243243	1521	3113133123	1587	3213312123	1653	2243311124
1456	2321131112	1522	1321233312	1588	3123223232	1654	2313342322
1457	3423342433	1523	1224233422	1589	2442243112	1655	3213343112
1458	2324343134	1524	3424344234	1590	3112231233	1656	1321131133
1459	2231234224	1525	3311124343	1591	1131224223	1657	3113344343
1460	1344324334	1526	3324244313	1592	2224334223	1658	1322224234
1461	1313342233	1527	1344323232	1593	3311231124	1659	1231134224
1462	1331123423	1528	2443242134	1594	2234312323	1660	3431124313
1463	2424331242	1529	1311123133	1595	2113334213	1661	3311131332
1464	3331124222	1530	3111323322	1596	1322113424	1662	3324323324
1465	2311232243	1531	2422344424	1597	1224333232	1663	1344332432
1466	3342244243	1532	2313131243	1598	1243243332	1664	2443311344
1467	3231122342	1533	2134221323	1599	2331244442	1665	1311134243
1468	3124331224	1534	2231342123	1600	3231331344	1666	3112224424
1469	2443213244	1535	3131312113	1601	2134342244	1667	2423334242
1470	3112334244	1536	1233131223	1602	3243231113	1668	2321132243
1471	1131343313	1537	2434344212	1603	3132344342	1669	2213231313
1472	2231324213	1538	1242324234	1604	3112213244	1670	2242132443
1473	3312211343	1539	1131222423	1605	2423124223	1671	3133344224
1474	2242113312	1540	3321331342	1606	2433133422	1672	1243311224
1475	2123132434	1541	3213242123	1607	3421312133	1673	2444231234
1476	1322243343	1542	3234323342	1608	2124342212	1674	1311324332
1477	1231311223	1543	1324233243	1609	3213334224	1675	1134311232
1478	1243131134	1544	2423342122	1610	2132321212	1676	3342323324
1479	2331131243	1545	1223321322	1611	1331343342	1677	3231211312
1480	3231312222	1546	2431331343	1612	1242131223	1678	3311234343
1481	2134323113	1547	2324224332	1613	1131233342	1679	1334242222
1482	3243133242	1548	2224312434	1614	1223132342	1680	2433212134
1483	3132334312	1549	1343342243	1615	2244311123	1681	1233222424
1484	3111342334	1550	2124334222	1616	3134344223	1682	2442344213
1485	2422322433	1551	3112324434	1617	2113342243	1683	2344212443
1486	2432333243	1552	1131321324	1618	3212313132	1684	2311243124
1487	3421124312	1553	2344312244	1619	3121334343	1685	2133111313
1488	2123343232	1554	1133212323	1620	2433132232	1686	2224331233
1489	3213222132	1555	3342124332	1621	2331311122	1687	3124242443
1490	2131313322	1556	3224242433	1622	2344331243	1688	1231132422
1491	1331233232	1557	3124213124	1623	3312231123	1689	2433134423
1492	1234243312	1558	3133312232	1624	1342323124	1690	1233231343
1493	1123332332	1559	1243123342	1625	3133232442	1691	1113313323
1494	1134324322	1560	2331121323	1626	1344223123	1692	3312342423
1495	2243131122	1561	3432331132	1627	1313134223	1693	3212313334
1496	3133312113	1562	2334322442	1628	1223324242	1694	3231331113
1497	1344323124	1563	2242121313	1629	3424344243	1695	1323342234
1498	3211133243	1564	2123212312	1630	1131324222	1696	2423342324
1499	3113324442	1565	1322323223	1631	2231324422	1697	1224243324
1500	2431234222	1566	1333311312	1632	3131212123	1698	2432133113
1501	2321343212	1567	2432322432	1633	1342324334	1699	2331132242
1502	2342332312	1568	3342344242	1634	3133242124	1700	2231331312
1503	3243331222	1569	2313221322	1635	3112223313	1701	2113212423
1504	1332342234	1570	3422242112	1636	2423134422	1702	2131343343
1505	3124343122	1571	3243213133	1637	2313224332	1703	3113334234
1506	1342131132	1572	3132342342	1638	2334224342	1704	1133213443
1507	1244242233	1573	3111344213	1639	3234331213	1705	2421313333
1508	1133131222	1574	3121332213	1640	1324242234	1706	1224333133
1509	3331344242	1575	1134331313	1641	3123313232	1707	3431211332
1510	3424312134	1576	2243232243	1642	1333132322	1708	3311242432
1511	2132343232	1577	3324322242	1643	1243311222	1709	3211211242
1512	3121313232	1578	2311233132	1644	1132311232	1710	3221242434
1513	1323311212	1579	2132332324	1645	3331222313	1711	1321213424
1514	3123112442	1580	1333131132	1646	3431113113	1712	2344333122
1515	2434244213	1581	1243243312	1647	2133212243	1713	1133324244
1516	2334324424	1582	1321111342	1648	3121322423	1714	2424233113
1517	2234342133	1583	2344322434	1649	1323312422	1715	2321212213
1518	2312112313	1584	3312213134	1650	3123322313	1716	2224213342

# Service with a Smile



To tickle the funnybone  
of anyone in a service  
oriented business.

[CLICK HERE TO LEARN MORE](#)



#SWS



## New GM HUF Series H0001-H3988, Part 1

1717	1343311322	1747	2224231313	1777	3313223242	1807	1134224222	1873	1321312422	1939	2432133342
1718	2124313333	1748	1343312332	1778	2243321132	1808	2243323112	1874	3124244223	1940	2334323434
1719	3112233112	1749	1313223112	1779	2124342243	1809	3324331134	1875	2443234243	1941	2334332243
1720	1131324312	1750	1324311213	1780	1324212343	1810	2312311123	1876	2421323312	1942	2432211132
1721	2421112422	1751	2424311343	1781	1233332422	1811	2133343213	1877	2321323434	1943	1232312342
1722	1133332342	1752	3324344312	1782	1311332313	1812	1342213423	1878	2421324432	1944	2432331234
1723	3342312133	1753	2312131112	1783	2343224342	1813	1311223112	1879	3342344244	1945	1234243332
1724	3231124234	1754	3421131334	1784	3244312132	1814	1322123423	1880	2131133313	1946	2443334244
1725	3124331334	1755	3231334222	1785	2234321132	1815	2421312244	1881	3221244232	1947	2432332242
1726	3134313124	1756	3131313224	1786	3313344312	1816	3324331123	1882	2134212422	1948	2444223312
1727	1243322112	1757	2444224423	1787	3212333132	1817	2312313444	1883	2113113342	1949	2444342334
1728	2331313443	1758	3113342112	1788	3123324443	1818	3422223423	1884	1321243232	1950	3121113133
1729	3442331133	1759	1134222422	1789	2443233112	1819	3242122313	1885	1231321343	1951	1234313332
1730	2334343434	1760	2242223134	1790	3113213113	1820	3132212122	1886	1321324232	1952	3113234312
1731	2242133442	1761	3324223424	1791	1132332332	1821	3111322424	1887	2421331333	1953	1324323223
1732	2123342213	1762	2312132243	1792	2234323112	1822	3121331232	1888	3422331124	1954	3124313334
1733	1323123132	1763	2133131234	1793	3324234343	1823	1224343323	1889	2321343434	1955	3113344422
1734	1334222422	1764	1333321232	1794	2312132443	1824	2312324422	1890	3432122242	1956	3124344332
1735	2433233122	1765	1243324233	1795	2133332442	1825	3422231134	1891	3442122431	1957	3131331224
1736	3421312212	1766	1321132323	1796	1334311313	1826	2321243442	1892	3442211332	1958	3211323332
1737	2321213324	1767	2421123112	1797	1243332313	1827	2224242313	1893	3442242422	1959	1324324224
1738	3431342432	1768	3312313212	1798	1321132424	1828	1343343242	1894	1134231334	1960	3132213123
1739	3312312132	1769	2242243433	1799	2421134343	1829	1321221243	1895	2243332442	1961	2113131124
1740	3211331223	1770	3324231212	1800	3324242113	1830	1331312423	1896	3211322232	1962	3221313422
1741	3121124232	1771	3213312224	1801	2312133424	1831	2431243234	1897	2123212424	1963	3132224442
1742	3124211232	1772	3123322423	1802	3421344242	1832	3342131332	1898	3221312124	1964	3132231224
1743	1224342223	1773	2443231233	1803	3234342444	1833	2321311334	1899	3124244423	1965	3134222242
1744	2312124213	1774	3113122424	1804	3132134442	1834	3431344243	1900	2443244213	1966	3221323342
1745	3421124332	1775	1132321332	1805	3111124224	1835	3342211322	1901	2424313442	1967	1331311213
1746	2321232312	1776	2231332443	1806	3121124423	1836	3231213233	1902	2443322243	1968	3134231112

## Locksmith Dispatcher 2000



Controlled  
Service  
dispatching  
software  
specifically  
for the  
locksmith!

CLICK HERE TO LEARN MORE

#DIS - 2000

1807	1134224222	1873	1321312422	1939	2432133342
1808	2243323112	1874	3124244223	1940	2334323434
1809	3324331134	1875	2443234243	1941	2334332243
1810	2312311123	1876	2421323312	1942	2432211132
1811	2133343213	1877	2321323434	1943	1232312342
1812	1342213423	1878	2421324432	1944	2432331234
1813	1311223112	1879	3342344244	1945	1234243332
1814	1322123423	1880	2131133313	1946	2443334244
1815	2421312244	1881	3221244232	1947	2432332242
1816	3324331123	1882	2134212422	1948	2444223312
1817	2312313444	1883	2113113342	1949	2444342334
1818	3422223423	1884	1321243232	1950	3121113133
1819	3242122313	1885	1231321343	1951	1234313332
1820	3132212122	1886	1321324232	1952	3113234312
1821	3111322424	1887	2421331333	1953	1324323223
1822	3121331232	1888	3422331124	1954	3124313334
1823	1224343323	1889	2321343434	1955	3113344422
1824	2312324422	1890	3432122242	1956	3124344332
1825	3422231134	1891	3442122431	1957	3131331224
1826	2321243442	1892	3442211332	1958	3211323332
1827	2224242313	1893	3442242422	1959	1324324224
1828	1343343242	1894	1134231334	1960	3132213123
1829	1321221243	1895	2243332442	1961	2113131124
1830	1331312423	1896	3211322232	1962	3221313422
1831	2431243234	1897	2123212424	1963	3132224442
1832	3342131332	1898	3221312124	1964	3132231224
1833	2321311334	1899	3124244423	1965	3134222242
1834	3431344243	1900	2443244213	1966	3221323342
1835	3342211322	1901	2424313442	1967	1331311213
1836	3231213233	1902	2443322243	1968	3134231112
1837	3124333123	1903	3442313133	1969	2113134312
1838	3134313423	1904	2213134212	1970	3221331112
1839	1243343324	1905	3243231122	1971	3221331213
1840	2334233124	1906	2224324213	1972	3224213132
1841	1113343313	1907	2113121312	1973	3231342344
1842	2421224343	1908	1322333442	1974	1234324233
1843	2321312443	1909	1231324234	1975	3231344313
1844	2224311132	1910	1323131232	1976	1331324224
1845	1343343422	1911	2424323432	1977	3242131342
1846	2124343242	1912	1113324312	1978	2224312324
1847	3112333113	1913	2424342123	1979	2113212212
1848	1131343322	1914	1231332343	1980	1331324334
1849	2421243113	1915	1124231333	1981	1234324323
1850	1134311234	1916	1124233313	1982	1331343243
1851	3342331134	1917	1133123243	1983	3243313222
1852	3231222132	1918	1231343323	1984	1332112132
1853	3124334232	1919	2321344442	1985	3243322332
1854	3211231112	1920	3224213233	1986	2224342134
1855	1321233442	1921	2213134313	1987	2113213343
1856	2421311342	1922	3243244234	1988	1334234212
1857	1231212324	1923	3134211242	1989	2113243423
1858	2433234242	1924	3112332213	1990	2224342312
1859	2334234233	1925	2424342332	1991	1242123134
1860	2234323433	1926	2443323424	1992	1242134242
1861	2113343332	1927	1133131213	1993	1242311243
1862	2133123123	1928	2234324344	1994	2123113422
1863	3124211212	1929	1134242222	1995	2123131233
1864	1231213433	1930	2431133112	1996	2123231324
1865	2434311344	1931	2331133423	1997	2131212243
1866	1234311224	1932	2331312312	1998	2231121322
1867	1124221132	1933	2331323244	1999	2131323433
1868	3342313134	1934	2431332232	2000	2131334222
1869	3231334422	1935	1134243313		
1870	3342322323	1936	2331323442		
1871	2131132312	1937	1232123342		
1872	3113213122	1938	2443324434		

TNL



**Taking  
Industry Products  
for a**

## TEST DRIVE!

**B**ased on a Schlage "A" chassis, the OMNILOCK OM250TL is a heavy duty, commercial grade electronic lockset that offers a multitude of capabilities. The lock installs in a 2-1/8" cylindrical door preparation and is available in either a lever or knob configuration.

**FEATURES:** The OMNILOCK 250 is programmable with up to 250 individual user codes and has an Audit Log that retains the last 250 audit records of day, date, time and identity. An Internal Clock offers daylight savings corrections and Time Scheduling for holidays and daylight savings. An Infrared link feature allows the lock to talk to a wireless printer.

A seven-digit user code can be picked manually or it can be randomly assigned by the lock using the AutoCode feature. A Master Code, Submaster Code and User code can also be programmed.

**CONSTRUCTION:** The electronic housing is made of 14 gauge plated steel and is 4-1/2" high and 3" wide, which is, based on a Schlage "A" line chassis with a 2-3/4" deadlatch.

One of the greatest attributes of this lock is that it retrofits into an existing 2-1/8" door preparation with no added mounting holes or wiring needed. This is one of the few electronic locks on the market that can make this claim, and in my opinion is a great advantage. The lever version requires two anti-rotation holes.

**WIRELESS PRINTER:** Used for programming commands and the audit trail, a wireless printer, which couples to the OMNILOCK optically with an infrared light beam, is also available.

## OMNILOCK™ 250 Series by OSI Security Devices

**USER ACCESS:** User access is achieved by entering one of 250 individual 7-digit User Codes on the metal keypad. If the code entered is valid, the outside handle will unlock and then relock when released. The user ID, along with the date and time are stored in a 250 record audit log for later retrieval by an administrator.

The first three digits of the User Code are the User ID and are unique to each assigned user. The last four digits are the Access Code for that user and are chosen manually or assigned automatically by the OMNILOCK using the AutoCode feature.

**PROGRAMMING:** The OMNILOCK is programmed by an administrator with a 7-digit master code of one of five 7-digit submaster codes. The wireless printer is held above the OMNILOCK to receive programming prompts and to audit the lock.

**ACCESS LEVELS:** The outside handle function is controlled by one of three selectable access levels:

1. Unlocked - The handle is free-turning allowing access to anyone.
2. Code Required - A valid user code is required to operate the outside handle. This is the normal access level setting.
3. Lockout - An extended user code is required to operate the outside handle.



4. Shutdown - A master or submaster code is required for operation.

**TIME SCHEDULE:** The time schedule allows the OMNILOCK to automatically set the access level at a predetermined time of the day.

**PRICE:** The list price for the OMNILOCK OM250TL-L is \$1,222, which includes the lock,

keypad and chassis. The printer is sold separately for \$420.

**CONCLUSION:** This is a very nice product that is well made and offers a number of features. OMNILOCK also offers a number of other models besides the 250 with features such as magnetic stripe reader. The fact that this unit will retrofit into an existing 2-1/8" hole without any modification is particularly nice. This makes the OMNILOCK not only easy to install, but easy to remove if necessary and no additional unsightly holes need to be covered.

*For more information on the OMNILOCK contact:*

OSI Security Devices  
1580 Jayken Way  
Chula Vista, CA 91911-4644  
Phone: (619) 628-1000  
Fax: (619) 628-1011  
Web: [www.osisecurity.com](http://www.osisecurity.com)  
Circle 277 on Rapid Reply. **RL**

### IN SUMMARY:

**DESCRIPTION:** The OMNILOCK OM250TL is a heavy duty, commercial grade electronic lockset that offers a multitude of capabilities.

**PRICE:** \$1,222

**COMMENTS:** The fact that it will retrofit into an existing 2-1/8" hole without any modification is particularly nice.

**TEST DRIVE RESULTS:** This is a very good product that is well made and offers a number of features.